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ABSTRACT

This report provides information on the Educational Quality Indicators (EQI) initiative, a 3-year collaboration between Alberta Education and 12 school jurisdictions to develop indicator systems that measure the success of the educational enterprise. Ten collaborative action-research projects were begun in 1989 and ended in 1992. Each project focused on specific aspects of educational improvement and accountability. The projects can be grouped into three major areas--system accountability, teaching and learning, and alternative student assessment strategies. Three projects focused on accountability--at Lacombe/Rocky Mountain, Grande Prairie, and Lethbridge Public. Projects at Spirit River and Fort McMurray Catholic examined teaching and learning. Five projects--Edmonton Public, Calgary Public and Catholic, Brooks, Fort McMurray Public, and Lethbridge Catholic--examined alternative ways to measure student success. This report summarizes the EQI initiative and each of the 10 projects. A final chapter summarizes the major accomplishments, proposes potential provincial indicators, and suggests further steps for expanding the use of indicators in school jurisdictions in Alberta. Figures, tables, and references accompany the project descriptions. (LMI)

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Achieving Quality

Final Report of the Educational Quality Indicators Initiative

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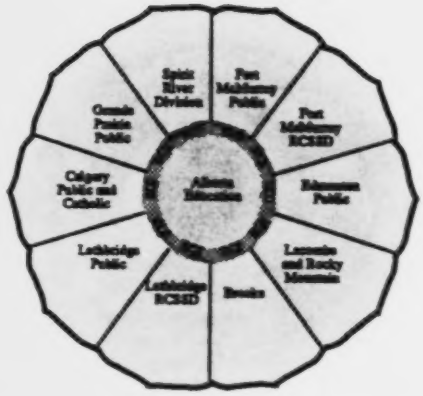

Educational Quality Indicators: Collaboration in Action

EA 024 882

Achieving Quality

Final Report of the Educational Quality Indicators Initiative

Alberta Education

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Abstract

The Educational Quality Indicators (EQI) initiative was a three-year collaboration between Alberta Education and twelve school jurisdictions to develop indicator systems to measure the success of the educational enterprise. Its goal was to assist the provincial government and school jurisdictions in providing better information to improve planning, policy and decision making. Towards this end, ten collaborative action research projects were initiated in 1989 and concluded in 1992. These projects developed indicator systems that include a broad range of outcomes, methods to collect, analyze and interpret data, and ways to report and communicate the information to different audiences.

Each project focused on specific aspects of educational improvement and accountability. The projects can be grouped into three major areas – system accountability, teaching and learning, and alternative student assessment strategies.

Three projects focused on accountability. The Lacombe/Rocky Mountain project developed a comprehensive school system review process. Grande Prairie developed school and district profiles, and Lethbridge Public developed a collaborative model for school and program evaluation.

Two projects examined teaching and learning. Spirit River identified 26 behaviors of effective teaching and prepared a teacher performance baseline for the division. Fort McMurray Catholic implemented the principles of outcome-based education in mathematics.

Five projects examined alternative ways to measure student success. Edmonton Public developed mechanisms for portfolio assessment and student growth. Calgary Public and Catholic developed indicators of quality student performance in art and mathematics. Brooks explored ways to measure responsible student behavior. Fort McMurray Public developed a three-level approach to measuring desirable student social outcomes. Lethbridge Catholic developed a taxonomy of student affective behaviors.

Achieving Quality is the final report of the Educational Quality Indicators initiative. It includes a summary of the initiative and each of the ten projects. A final chapter summarizes the major accomplishments, proposes potential provincial indicators, and suggests further steps in expanding the use of indicators in school jurisdictions in Alberta.

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The Educational Quality Indicators Initiative

Alberta Education

The Educational Quality Indicators (EQI) initiative was a collaboration between Alberta Education and twelve school jurisdictions to develop and implement indicator systems to measure the success of the educational enterprise. Its goal was to assist the provincial government and school jurisdictions in providing better information to improve planning, policy and decision making. Towards this end, ten concurrent collaborative action research projects were initiated in 1989 and concluded in 1992. These projects developed indicator systems that include a broad range of outcomes, methods to collect, analyze and interpret data, and ways to report and communicate the information to different audiences. *Achieving Quality* is the final report of the EQI initiative.

Introduction

Background

A new wave of educational reform began in the 1980s. Perceived shortcomings in education, and international competition in all sectors, served as a catalyst for the current accountability and reform movements in Canada and the United States, and indeed around the world. These reforms resulted in many organizations developing or implementing what have become known as educational indicator systems. Indicators can describe education in a way that permits meaningful interpretation to take place, leading to educational improvement and accountability.

A major educational reform effort in Alberta was stimulated by a series of changes in the political, economic and social climate of the province. In 1982, Alberta Education introduced the Achievement Testing Program at grades 3, 6 and 9, and in 1984, reinstated the Diploma Examination Program at grade 12 as part of the requirements for high school graduation. Annual provincial reports provide information about test results at the provincial level.

In 1984, the Government of Alberta introduced a number of other initiatives to improve education in the province. These included the School Act Review, the Management and Finance Plan, the Review of Secondary School Programs, and the introduction of five evaluation policies (student, teacher, program, school and school system). As a result, the present management approach attempts to balance the inputs, processes and outcomes of the educational enterprise.

Two primary beliefs influenced the reform initiatives in Alberta. First, the student is the central reason for schooling, and second, education is a purposeful endeavor that can be assessed. To assist in ensuring that these beliefs became operational, Alberta Education promoted a results-based approach to education to provide a better balance among inputs, processes and results.

The EQI initiative was one of the projects designed to promote results-based education in Alberta. A significant feature was that it introduced a collaborative model to the provincial reform initiatives. EQI participants became members of a provincial committee which discussed and recommended directions to Alberta Education in achieving results-based education. The province will synthesize the results and, together with its other initiatives, work toward a provincial indicator system.

EQI was designed to produce a set of indicators, appropriate standards and accompanying methods to measure the performance of the educational system in the province. Indicators provide information to assist in assessing the quality of educational programs and the delivery system by focusing on student outcomes. The proposed system of measuring success has taken into consideration and reflects government policy and the goals of schooling. It addresses two essential questions:

1. Are students learning to their potential?

2. Is the educational system supporting student learning effectively and efficiently?

Rationale

The current educational reform movement led to expectations for greater accountability and increased monitoring and evaluation of schools and systems. Indicator systems help to assess the effectiveness and efficiency of the educational enterprise, to improve education, and to provide a mechanism for accountability. The expected results over the three years of the EQI initiative were:

- indicator systems to include a broad range of student outcomes, points of reference for comparing results, and an interpretative framework to describe variation among students and schools;

- methods to collect, analyze and interpret the information provided by the indicators; and

- ways to report and communicate the information to different audiences.

A fundamental principle of the EQI initiative was that no single indicator, or even group of indicators, could fully describe the complexity of education. Any system would include many indicators, measured by both quantitative and qualitative methods, for selected dimensions. An indicator system is intended to *enhance* information about education for improved *action* in planning, policy and decision making.

The use of multiple indicators repeated over time can describe the complexity of education and provide a good picture of performance. Information available through documentation, student assessment, surveys and observation, can describe the effectiveness and efficiency of the operation. As there are multiple users of information, it is also necessary to determine what type of information the different audiences require and to tailor information reports to their specific needs (Bock & Mislevy, 1988).

Conceptual Framework

The conceptual framework for the Educational Quality Indicators initiative guided the direction of the ten collaborative action research projects and the discussion of results-based education within Alberta Education. Educational indicators provide information about a system's current functioning, suggest whether progress is being made and warn of any potential problems (Oakes, 1986). While indicators cannot describe a system completely, they do provide a picture of existing conditions which can inform planning, policy and decision making.

An educational indicator system should provide:

- information that is feasible to gather, valid and useful for policy decisions;
- logical clusters of indicators to increase the system's interpretative power;
- points of reference such as a previous value, the value of a comparison group or some socially determined standard;
- measures of the ubiquitous features of schooling that are: enduring, easily understood, feasibly measured and generally accepted as valid and reliable statistics;
- a reporting system that is accurate and timely (Oakes, 1986; Selden, 1988).

A four-dimensional model of education was developed to guide the direction of this initiative. It consists of partners (schooling, family and society), conditions (context, inputs and processes), student outcomes (cognitive, affective and behavioral) and time (grades 3, 6, 9 and 12) (McEwen & Zatko, 1989). The model draws on the work of Carroll (1963), Hymel (1988), Walberg (1984), Oakes (1986) and Shavelson *et al* (1987). The EQI model extends the work of the above by consolidating the joint responsibility of the partners who contribute specific conditions to developing student learning over time.

The model provides a way of describing the interrelationships among the dimensions. This description of the educational system and student achievement is not meant to predict future behavior, but rather to help in providing some understanding of the educational phenomena that can subsequently be acted upon to improve the situation. It is intended to permit multiple levels of analysis – province, community, school, classroom and individual students – so that a range of interpretations can be drawn and improvement targets proposed (Cziko, 1989).

Education is a complex social enterprise. Focusing on schooling alone, without regard for the other influences that shape its direction, will likely not result in significant change. This model incorporates the responsibilities of the other major partners and recognizes conditions which contribute to student outcomes. For educational constituencies to determine whether or not students are making appropriate progress, it is necessary to examine results over time to determine what changes should and have been effected.

The EQI initiative set three criteria for a successful indicator system: an interpretative framework to describe variation among students and schools; student outcomes related to the educational enterprise; and points of reference for comparing results (Alberta Education, 1988).

- The *interpretative framework* consists of the partners (schooling, family and society) and conditions (context, inputs and processes). Together the partners and their respective conditions provide a framework for helping to understand the student outcomes which schools, the family and society strive to produce through adjusting the inputs and processes; the context is not as readily changeable. School jurisdictions and government collect a lot of information on context and inputs; some also collect information on instructional processes. School jurisdictions are interested in results for students in other jurisdictions of comparable size, location and economic base.

- *Student outcomes* include a broad range of the behaviors desired by schools in the cognitive, affective, physical and social domains; the outcomes selected for measurement should relate to the goals and priorities of the local school jurisdiction and the province.

- *Points of reference* include time, groups and targets. Assessment of selected indicators can occur either on an annual or a periodic basis; for example, Alberta achievement tests and diploma examinations are administered annually to students in grades 3, 6, 9 and 12, whereas assessments such as those conducted by the International Association for the Evaluation of Educational Achievement (IEA) and the International Assessment of Educational Progress (IAEP) occur periodically in selected subject areas. Groups for comparing results can include local, provincial, national and international counterparts. Targets include benchmarks and standards. Benchmarks describe the existing level of conditions and outcomes whereas standards define an optimal or desired level; targets specify a feasible level of improvement within a predetermined period of time. A target sets an improvement increment over what exists (the benchmark) in an attempt to reach what is desired (the standard).

Design

The Terms of Reference (November 1988) provided direction to the EQI projects. School jurisdictions that were already concerned with measuring educational quality were identified and invited to submit a proposal. Alberta Education provided the funds to assist these jurisdictions to improve their assessment procedures and to share the results with others in the province.

The 1988-89 school year was devoted to developing the conceptual framework and implementation plan, developing the Terms of Reference for the projects, initiating the collaborative action research projects, and organizing the committees. The projects began in 1989 and formally concluded in 1992.

Coordination of the EQI initiative resided in the Policy and Planning Branch of Alberta Education. A provincial coordinator was responsible for the initiative. Two committees also provided assistance to EQI. The Working Group consisted of the liaison staff from each of the five Regional Offices of Education (located in Grande Prairie, Edmonton, Red Deer, Calgary and Lethbridge). This committee was responsible for monitoring the projects. It met on a regular basis to discuss progress, identify issues and strategies, and to plan the provincial meetings. The second committee was the interdivisional Advisory Group with representatives from branches within the Student Programs and Evaluation and Finance and Administration Divisions of Alberta Education; it met on a periodic basis and provided input and feedback. Both committees participated in the semiannual provincial meetings.

Local Development

Each project was autonomous and the responsibility of a local coordinator and project team. This coordinator reported to the superintendent for the school jurisdiction and was responsible for the developmental work and the management of the tasks identified in the contract between the school jurisdiction and the department. The contract required annual progress reports as well as a final report upon completion of the project in 1992. Each project was guided by a local Steering Committee consisting of the local coordinator and other staff from the participating school jurisdiction, liaison staff from the Regional Office of Education, and the provincial coordinator. The Steering Committee's responsibilities included consultation and evaluation of the terms of the contract.

Each participating school jurisdiction was responsible for its own project because each represents a community which has values it wishes to impart to its students through its goals, priorities and expectations. It was important that each project reflect these aspirations by involving its public – students, teachers, administrators trustees, parents, others – in discussions on which indicators to include and why. Without input from the larger community, the indicators might not provide a representative picture of the expected outcomes of the educational system.

Each participating school jurisdiction developed and implemented a local indicator system having three components: (1) a set of indicators including an interpretative framework, student outcomes and points of reference; (2) methods to collect, analyze and interpret the information; and (3) a reporting and dissemination strategy to inform diverse audiences of the results. The selected indicators represent each jurisdiction's goals and priorities and reflect the community's expectations. Every project had three phases, each of approximately one year's duration. The first year, 1989-90, was a developmental one and the subsequent two years resulted in field-testing the prototype sets of indicators and procedures, and then refining them.

School jurisdictions, if they are to make sense of the outcomes of their educational enterprise, need to interpret the results in terms of their local circumstances. In the process of developing a preliminary set of indicators, trying it out in their own

jurisdiction and refining it on the basis of the results, jurisdictions took the opportunity to develop and use indicators that are flexible, responsive to local needs, have community support, and can provide them with the type of information they need for setting policies, practices and procedures.

Provincial Support

Alberta Education supported this initiative by providing resources (funds and consultation), information and coordination. Alberta Education committed $1 million to the EQI initiative to support the three-year concurrent research projects.

The Collaborator – This quarterly newsletter was introduced as a communications mechanism for the project teams and Alberta Education. The first issue was released in September 1989 at the first provincial meeting. It provided an overview of EQI and each of the ten concurrent collaborative action research projects. Eleven subsequent issues were published. Each June issue contained an annual status report. EQI participants regularly contributed material on the progress of their projects. This 92-page record documented events and activities over the three years.

Technical Documents – Alberta Education developed three technical documents to support the EQI initiative. The first, an *Annotated Bibliography*, was initially distributed in July 1989. It was subsequently revised, expanded and reorganized and a second edition released in January 1990, followed by a supplement in December 1990. This second edition contains approximately 350 annotations organized into 14 themes under three major headings: indicator systems, interpretative framework and outcomes. It has been distributed to all school jurisdictions in Alberta to promote the discussion of results-based education. The second report, *Methodological Considerations*, consists of a rationale for a balanced approach to quantitative and qualitative analysis, followed by considerations in employing these two methods. The third document, *Inventory of Assessment Instruments*, contains a description of technical criteria for analyzing instruments, and critiques of more than 90 instruments. The inventory identified potential assessment instruments and screened them according to their psychometric properties and suitability for EQI. It provided participants with a convenient pool of possible measures for the types of indicators that interested them.

Semiannual Meetings – The key participants – Alberta Education staff, project coordinators and superintendents – met semiannually to share information, discuss and interpret findings, and identify issues and strategies. These meetings served to maintain personal contact among participants, to promote synergy, and encouraged people to meet deadlines.

Professional Development – An important component of the EQI initiative was professional development. The November 1990 meeting featured concurrent workshops on the *Inventory of Assessment Instruments* and qualitative methods described in *Methodological Considerations*. These sessions provided participants with the opportunity to work through the material, ask questions, and discuss issues. The interactive computer version of the *Annotated Bibliography* was also demonstrated. The January 1992 meeting featured clarifying final report expectations and criteria for ensuring quality reports. There were also two concurrent workshops. The first featured data analysis and presentation using a

statistical and graphic utility; participants were able to try out StatView on five Macintosh microcomputers and a PowerBook. The second workshop focused on communicating with the public; it involved developing a communications strategy and group work in developing strategies for the projects.

Technical Advice – In 1991, two measurement experts were engaged to provide technical advice to the project teams. University of Alberta professors Tom Maguire and Todd Rogers reviewed the materials prepared by the teams and, together with the provincial coordinator, visited each team to discuss the projects. Each team received written comments on its project and suggestions for improvement. This individualized assistance supplemented that provided by the provincial coordinator.

The Projects

Achieving Quality presents a summary of each of the ten projects that have devised many new indicators and practices for assessing the quality of education in their districts. The new knowledge generated by the projects can be used by others. The summaries have been organized into three major areas – system accountability, teaching and learning, and alternative student assessment strategies, each corresponding to the major focus of the projects. Within each area, there is diversity in types of indicators, approaches and reporting results.

System Accountability

Three projects focused on accountability at the district level. They developed indicator systems to examine the district as a whole, at the school level, and for specific programs.

The Lacombe/Rocky Mountain Project developed a comprehensive school system review process encompassing student, teacher, program, school and school system evaluations. Its design consisted of five interrelated components: involvement of educational partners in developing and implementing the review, development of a set of goals of learning to form the basis of the review, identification of outcome, condition and process indicators, identification of ways of measuring the indicators and interpreting the results, and a planning process to use the findings.

Grande Prairie Public developed school and district profiles to inform stakeholders of the quality of education in its district. The profiles provide information in four areas – student achievement, school climate, quality of instruction, and funding – and will be published annually.

Lethbridge Public developed a collaborative model for school and program evaluation. The model includes inputs, student outcomes, and identifies assessment processes. It is generalizable and could be adapted for other programs.

Teaching and Learning

Two projects focused on teaching and learning – one examined teaching behaviors and another outcome-based education.

Spirit River identified 26 behaviors of effective teaching and grouped them into four areas – planning and preparation, instructional strategies, communication skills, and pupil/teacher relationships. In 1991, teachers were observed on these behaviors and a composite performance baseline prepared. Student perceptions, attitudes, achievement and discipline data were also collected. Data collection was repeated in 1992 to provide a basis for comparison.

Fort McMurray Catholic implemented the principles of outcome-based education in mathematics from grades 3 to 10, and measured student success in achievement, responsibility and attitudes.

Alternative Student Assessment Strategies

Five projects examined alternative ways to measure student success. These included portfolio assessment and growth, exemplars of performance, responsible student behavior, social skill development, and affective outcomes.

Edmonton Public developed mechanisms for student portfolio assessment and computer technology for communicating and storing information about student growth, and established and validated curriculum-based district level assessment strategies.

Calgary Public and Catholic developed indicators of quality student performance in art and mathematics. EQI-Art focused on the *product* of learning, that is, the artwork prepared by the student, while EQI-Math focused on the *process* of student thinking in solving mathematical problems.

Brooks explored ways to measure responsible student behavior. This project collected data from a variety of sources and involved the community in reaffirming its commitment to positive student behavior.

Fort McMurray Public focused on desirable student social outcomes. The three-level approach to measuring social skills includes a diagnostic screen and a manual of activities to help students develop effective personal, interpersonal, social reasoning and classroom behaviors.

Lethbridge Catholic developed a taxonomy of student affective behaviors in five areas – self-worth, interpersonal relationships, world awareness, learning, and spiritual life.

Overview

This first chapter has introduced the Educational Quality Indicators initiative. It has described the background and rationale for this partnership with participating school jurisdictions. The conceptual framework guided the direction of the ten projects and provided a common framework and language for results-based education. Alberta Education supported the projects with resources (funds and consultation), information and coordination.

Each project selected aspects of the indicator system based on local goals, priorities and expectations. The ten projects have been organized into three major areas dealing with system accountability, teaching and learning, and alternative student assessment strategies. The next ten chapters of *Achieving Quality* provide a summary of each project. A final chapter discusses EQI accomplishments and next steps.

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School System Review:

A Comprehensive Process

County of Lacombe No. 14 and
Rocky Mountain School Division No. 15

The County of Lacombe and Rocky Mountain School Division initiated a study to develop and implement a comprehensive school system review based on quality indicators of student learning and indicators of related conditions and processes. A further purpose was to combine teacher, program, school and school system evaluations within the review process. The design of the project consisted of five interrelated components: involvement of educational partners in developing and implementing the review, development of a set of goals of learning to form the basis of the review, identification of outcome, condition and process indicators, identification of ways of measuring the indicators and interpreting the results, and a planning process to utilize the findings.

The components of the review were collaboratively developed over a two-year period. A balanced set of goals in four groups – intellectual, social, personal and vocational learning – was developed and indicators of cognitive, affective and behavioral learning were identified. Nine significant measures were identified or developed for the outcome indicators whereas four measures and six processes were selected for condition and process indicators. Locally developed instruments and other processes were field-tested.

The full system review was implemented in the third year. Data were collected and have been assembled, and a procedures handbook on implementing the review has been completed. Individual teacher reports on classroom conditions and processes and school and systems reports, organized by the goals of learning, have also been finalized.

The review process was found to be sound and feasible to implement. The findings on student learning reveal that a comprehensive description of student learning by a system of indicators is possible.

To date the interpretation and planning processes have not been completed, but both boards are committed to using the results in a planning process followed by four years of implementing improvements.

The review provides better data for accountability and more definitive data for planning. It balances evaluation, planning and implementation activities more appropriately and uses data for a variety of reports. The process could be adapted for use in other school systems to yield similar benefits.

Introduction

The County of Lacombe No. 14 and the Rocky Mountain School Division No. 15, two small rural school jurisdictions in central Alberta, have had a continuing interest in being accountable and in improving the quality of education. Commencing in 1985, both systems have conducted satisfaction surveys with their publics, reported the results and established improvement plans. Additionally, to adhere to departmental policy, the County of Lacombe developed an integrated teacher and school evaluation process whereas Rocky Mountain School Division concentrated on more traditional teacher, school and program evaluations. Both, as is usual, reviewed and reported on student achievement tests and diploma exams. Hence when the provincial initiative on educational quality indicators became a reality, they welcomed the opportunity to move to another step in the evolution of evaluation in their systems and to develop a comprehensive school system review process based on educational quality indicators that would combine all components of evaluation into one package.

Rationale

Although both school systems had been devoting an extensive amount of time to a variety of commendable evaluation activities, they did not see concomitant improvements being made in the educational program. Part of the reason for this lack of program improvement was that supervisory personnel and school staffs were devoting most of their time and effort to evaluation with little time left for developing and implementing follow-up improvements. The publics involved in the surveys and other evaluative activities were also concerned about a lack of benefits from these activities. System personnel were also cognizant of the many times when educational change in system decisions were precipitated by results on a single indicator or the occurrence of a single incident.

System personnel, nevertheless, felt that many worthwhile evaluation activities had been developed in the systems: the public reporting of student results, the satisfaction surveys and the teacher, program and school evaluations. Thus, the systems wanted to address the concerns, utilizing existing evaluation activities but to evolve further by basing evaluations on educational quality indicators. They wanted to develop a more comprehensive evaluation system, one that was efficient and that included a process for planning and implementing improvements.

Purposes

The primary purpose of the study was to develop a comprehensive school review process based on student outcome indicators and the condition and process indicators that contribute to student learning. Thus, the review process would not only determine how well students were learning, but would also determine the conditions and processes that were contributing to learning and those that were not. The findings would be utilized to develop a plan for enhancing student learning and to inform the public about the state of learning in the system.

Another purpose was to develop an efficient evaluation system that would maximize the use of the findings to generate teacher, school, program and school reports.

Design

The school system review process is based on an educational quality indicator system that focuses on indicators of student outcomes as well as indicators of conditions and processes that affect student outcomes. A review of the literature suggests that an indicator system should:

- be based on a comprehensive statement of goals of learning which are a local interpretation of provincial goals (David, 1986);
- include multiple indicators that comprise a system to increase interpretative power (Goertz, 1989);
- include a point of comparison such as a larger group or a previous result, and include conditions and processes to assist in interpreting outcomes (US Department of Education, 1985; Goertz, 1989; Haertel, Katzenmeyer, & Haertel, 1989);
- focus on indicators that are enduring, easily understood and feasibly measured (Oakes, 1989);
- produce information that can be readily used for planning improvements or making policy decisions (US Department of Education, 1985);
- involve all educational partners in the development and implementation of the indicator system (David, 1986);
- be designed as an integral part of the operation of the school system (Kaufman, 1988).

The design of the school system review process, incorporating the above characteristics of an indicator system, consists of five distinct but interrelated components:

1. a plan for involvement of all educational partners in its development and implementation;
2. a comprehensive statement of goals of learning;
3. a system of indicators to measure all goals of learning and the contributing conditions and processes;
4. a process for measuring and interpreting learning;
5. a planning process.

These components are shown in Figure 1 below and are described further following the diagram.

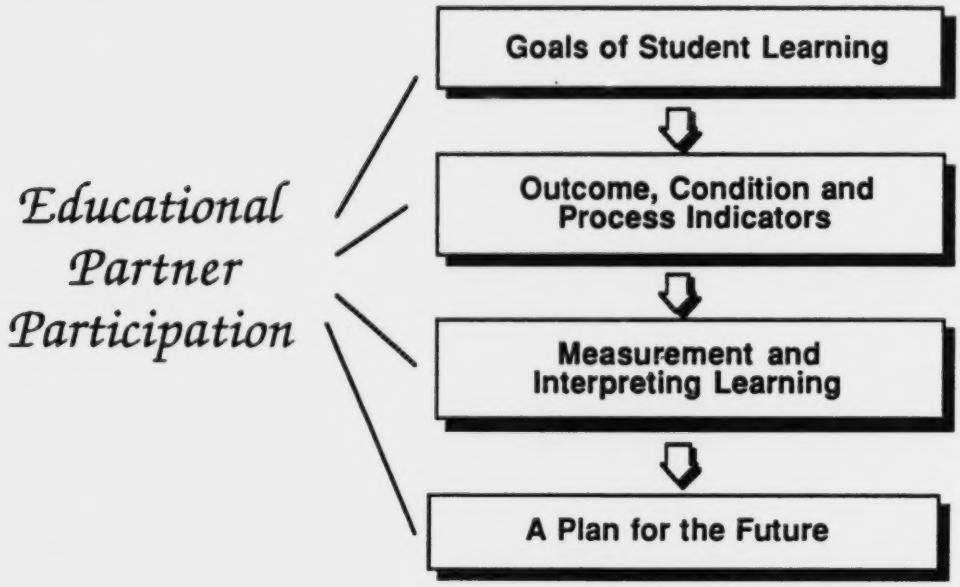
Goals of Student Learning
Outcome, Condition and Process Indicators
Measurement and Interpreting Learning
A Plan for the Future
Educational Partner Participation

Figure 1: The Project Blueprint

Educational Partner Involvement

The educational partners were involved in the development and implementation of all components of the school system review process: the specification of goals, identification of indicators and comparators, the development of some of the measures, the interpretation of the results and the development of an improvement plan. There were generally four types of involvement by the educational partners. First, there was a steering committee, representing a broad cross section of the educational community, in each jurisdiction that planned and sanctioned directions for the project. Second, a process committee of parents, teachers and administrators in each system was involved in the detailed development and implementation of the review system. Third, there was direct and wide involvement of parents, staff and the public in some of the developments. Fourth, administrators and staff were used as a sounding board as the process was being developed.

Goals of Student Learning

The development of a comprehensive statement of goals of student learning was required to provide a focus for the school system review. As a result, the evaluation could then be based on the specific results that each system wished to achieve on a local interpretation of provincial goals. To accomplish this statement of goals, the steering committee, through a group process and using assessment guidelines provided by the coordinator, reviewed a number of goal statements from the department. Although consensus was achieved at this stage on a goal statement in each jurisdiction, the statements were refined when the participants in future meetings were identifying outcome and process indicators. Goals were found to overlap and some goals were found not to be measurable. At this stage, it was also suggested that the goals be put into four groups: intellectual, social, personal and vocational. It was felt that this categorization would enhance understanding of the goals and promote the appropriate emphasis. Furthermore, the goals were categorized on the basis of responsibility for implementing them – *primary* for school responsibility and *shared* for both school and family responsibility.

The significance of this exercise of developing a goal statement is that the jurisdictions now have a statement of goals of learning with a local flavor that educational partners understand and accept as a basis for educational programs and their evaluation. The goals that were agreed upon and sanctioned by the local steering committees are outlined in Figure 2.

Outcome, Condition and Process Indicators and Measures

Utilizing the statement of goals of student learning, indicators of achievement of the goals, appropriate existing or required measures and comparators were identified at meetings of parents and teachers at all schools in both systems.

The meetings also succeeded in increasing awareness and support for the project as well as the use of multiple indicators since there was a general concern about using single indicators to describe the quality of education.

Through the workshop sessions and subsequent revisions by project personnel and committees, outcome indicators relevant to any jurisdiction review were identified. The indicators were organized into three categories: cognitive, affective and behavioral. The cognitive indicators included achievement, program participation, completion rates, independent learning and problem solving; the affective indicators were student satisfaction, self-concept, attitudes, motivation and aspirations; the behavioral indicators were desirable characteristics, participation in related activities, community service, attendance, image, health and fitness.

A sample of the outcome indicators, measures and comparators for the goal to "develop knowledge, skills and attitudes in language arts and communication" is contained in Figure 3. A similar outline of indicators, measures and comparators is available for every goal of learning.

Intellectual learning	Develop intellectual curiosity and a desire for independent lifelong learning. (shared) Develop knowledge, skills and positive attitudes in language and communication, mathematics, practical and fine arts, sciences and social studies. (primary) Develop ways of learning including: • skills of finding, comprehending, organizing, analyzing, applying and synthesizing information; • skills of learning through technology; • skills of studying. (primary)
Social learning	Develop a sense of community responsibility which embraces: • an understanding of and appropriate participation in citizenship at the local, national, and international levels; (primary) • respect for law and authority, public and private property, and the opinions and rights of others; (shared) • appreciation of the importance of tradition and culture; (shared) • the careful use of natural resources and the preservation of the physical environment. (shared)
Personal learning	Acquire knowledge and develop skills which contribute to physical well-being. (shared) Acquire knowledge, develop skills, attitudes, and habits that contribute to emotional well-being including: • achieving a positive self-concept; • acquiring a high level of self-discipline and individual responsibility; • acquiring an ability to respond to change; • developing short and long-term personal goals. (shared)
Vocational learning	Acquire knowledge and skills, attitudes, and habits for individuals to be successful in the world of work. (primary)

Figure 2: Goals of Student Learning

Intellectual Learning: *Develop knowledge, skills and positive attitudes in language and communication*

Outcomes	Indicators	Measures	Comparators	Grades
cognitive	achievement	language arts achievement test	provincial and system results	3, 6 & 9
		English 30 and 33 diploma exams	provincial and system results	12
affective	attitude	*School Subjects Attitude Scales (SSAS)*	test norms	6, 9 & 12
behavioral	participation in achievement tests	document review	system and provincial rates	3, 6 & 9
	participation in or the need to participate in remedial programs	document review, survey	provincial rates	3, 6 & 9
	participation in grade 12 diploma courses	document review	provincial and system rates	12
	course completions	document review	provincial and system rates	3, 6, 9 & 12
	amount of leisure reading	student survey	system average	6, 9 & 12
	participation in related activities	student survey	system results	6, 9 & 12
	image - educational partner satisfaction	survey	provincial and past survey results	N/A

Figure 3: The Indicators, Measures, Comparators and Grades of Administration for One Goal

The process committee consisting of teachers, administrators and parents with representation from each school was formed to identify context, input and process variables that affect student learning. By utilizing a number of system documents including the systems' mission and improvement goals, previous inservice program agendas, school system program and school evaluations, as well as a document entitled *What Works: Research about Teaching and Learning* (US Department of Education, 1987), the committees were asked to identify context, input and process variables that were relevant in each system but were also identified in the literature as affecting achievement.

There was some initial confusion about the distinction between context, input and process variables as well as a way of organizing the variables. As a result, the coordinator decided to use a categorization adapted from Oakes (1989) that identified three sets of conditions which affect student achievement:

- access to learning includes those variables that affect students' opportunities to learn;
- press for achievement includes those variables that encourage students to achieve better; and
- professional teaching conditions are the variables that empower or constrain educators as they implement the instructional program.

It was felt that these three categories would be more readily understood by all educational partners. Furthermore, to avoid confusion it was decided to call them simply "conditions and processes" rather than context, input and process variables.

Indicators of the above sets of conditions and processes were identified in four areas: the home, classroom, school, and school system. Figure 4 outlines the condition and process indicators along with the instruments or methods for measuring the indicators.

Measuring and Interpreting Learning

The identification of measures in Figures 3 and 4 above was guided by the following considerations:

- existing measures such as achievement tests and diploma exams would be utilized as much as possible;
- existing standardized measures would be used wherever possible to enhance reliability and validity;
- the measuring devices used would be tests and inventories, surveys, document reviews, self-evaluation and observations.

As a result, the measurement of most indicators was accomplished by utilizing existing instruments and documents. Three locally developed instruments were used in the review: the *Satisfaction Survey*, the *Adolescent Health Questionnaire* and the *Classroom Observation Scales*.

The instruments used to measure the outcome, condition and process indicators are described below, followed by a discussion of the organization of the data from all instruments to describe student learning and to prepare teacher, school, program and school system reports.

Outcome Indicators – The indicators of student achievement in the four areas of learning – intellectual, social, personal and vocational – were measured by diploma exams, achievement tests, standardized tests and inventories, teacher student evaluation systems, locally developed surveys and inventories, and document reviews. The instruments and documents used to measure achievement of the indicators in the four areas of learning are briefly outlined below.

In intellectual learning, student achievement in the core subjects was measured by the provincial achievement tests and the diploma exams. Achievement in non-diploma math and science courses, in fine and practical arts, and in work experience was measured by final marks awarded by classroom teachers. Achievement in intellectual curiosity was measured by the survey while achievement in ways of learning was measured by the achievement tests and diploma exams, portions of the *Canadian Tests of Basic Skills (1982, 1989)* and the *Learning Preference Questionnaire (1987)* which determines students' approach to learning.

Condition	Area	Indicator	Measure
access to schooling	home	• family structure • socioeconomic status • student mobility	survey, document review
press for achievement	home	• attitudes and actions of importance to education	survey
access to learning	classroom	• instructional presentation • classroom environment • academic engaged time • adaptive instruction • instructional planning • grouping practices • ability and nature of class • materials and resources • parental involvement	self-evaluation, observation, survey
press for achievement	classroom	• teacher expectations • relevant practice • informed feedback • progress evaluation • student recognition	self-evaluation, observation, survey
access to schooling	school	• location and size • course offerings • instructional time • teacher qualifications • co-curricular and peer programs • school grouping practices • parental involvement • curriculum articulation and resources	document review, survey, committee study, external review
press for achievement	school	• leadership • climate • academic focus • expectations • feedback • student participation • motivational strategies • mission • parental involvement • cosmetic care • type of homework • communication with public	School Effectiveness Opinionnaire, external validation, survey
professional teaching conditions	school	• class size • teacher planning time • teacher involvement in decision making • teacher autonomy and flexibility • clerical and paraprofessional support • teacher attitude and morale	document review, survey, School Effectiveness Opinionnaire
access to schooling	school system	• location, size and assessment base • public satisfaction with education • parental involvement in decision making • professional development • support for curriculum enhancement	document review, survey
press for achievement	school system	• mission, goals and actions for improvement • high expectations for employee performance and student achievement • recognition of employees and students • monitor student achievement • monitor instructional program • communication with public	document review, survey
professional teaching conditions	school system	• staff involvement in system decision making • school flexibility and autonomy	document review, survey

Figure 4: Indicators of Conditions and Processes Affecting Student Achievement

Participation rates for high school courses, the percentage of students taking each course, was calculated using data from two documents, the *School Program Plan* and the *Summary of Enrollment by Age, Grade and Sex*. Provincial rates were calculated by using data on the numbers of course participants and total grade enrollments provided by Alberta Education Information Services. Participation rates for students in core subjects in grades 3, 6 and 9 were calculated from the jurisdiction reports for achievement tests by dividing the number of students writing by the total grade enrollment.

Completion rates for high school courses were determined by using information from the *School Program Plan*, the jurisdiction diploma exam report, and in the case of nondiploma exam courses, the summary reports of final marks. Completion rates for grades 3, 6 and 9 were calculated from the jurisdiction reports by dividing the number achieving the acceptable standard by the number eligible to write the test.

Student attitudes in core subjects were measured by the *School Subjects Attitude Scales* (1983) while student and partner satisfaction with learning and student participation in related activities was measured by the *Satisfaction Survey*.

In social learning, development of personal attributes and social skills, as well as involvement in promotional activities, was measured by the survey and review of documents.

In personal learning, physical well-being was measured by participation in senior high physical education courses, by the *Canada Fitness Award* (1984), the *Satisfaction Survey* and through the *Adolescent Health Questionnaire* which measured four components of physical well-being: eating habits, involvement in activities, substance use and sexuality.

The indicators of emotional well-being were measured by a standardized instrument, the survey, review of documents and the locally-developed health inventory. Student's self-concept was measured by the *Piers-Harris Children's Self-Concept Scale (1984)*, a scale that measures overall concept as well as six subscales: behavior, intellectual and school status, physical appearance and attributes, anxiety, popularity, and happiness and satisfaction. Through the survey, student, parent and teacher satisfaction with student development of desirable characteristics, such as self-discipline and goal orientation, was measured.

Condition and Process Indicators – As indicated in Figure 4, the condition and process indicators were measured by five means: the satisfaction survey, document review, a standardized instrument, the *Classroom Observation Scales* and committee study. Use is described in four areas: the home, classroom, school, and school system.

In the home, the survey was used to measure family structure and attitudes whereas document review was utilized for socioeconomic status and student mobility.

In the classroom, the survey was used to measure some indicators like grouping practices and student recognition. The locally developed *Classroom Observation Scales* were used for all indicators related to teaching and learning, such as instructional presentation and academic engaged time. The process for assessing these indicators involved teacher self-evaluation, observation and external evaluation by school administrators and external validation by system personnel.

In the school, using the *School Program Plan*, teacher and school timetables, and the report on teacher qualifications, indicators such as course offerings, instruction time, class size and teacher planning time were measured. The survey measured a number of indicators like grouping practices, parental involvement and teacher involvement in decision making. Through committee study followed by external review, curriculum articulation in the core subjects was measured. The *School Effectiveness Opinionnaire* (1989) measured ten school effectiveness indicators: leadership, academic focus, climate, expectations, feedback, student participation, motivational strategies, mission, parental involvement and cosmetic care. Following compilation of the opinionnaire results, an external validation team reviewed the data for a number of indicators.

In the school system, a review of *Education in Alberta: Facts and Figures 1991*, the jurisdiction policy handbooks and system planning documents were used to assess a number of system indicators like assessment base, parent and staff involvement in decisions and support for curriculum enrichment. The survey was used to augment, confirm or dispute policy directions for the same indicators.

Organization of the Findings for Reporting

Since the focus of the school system review process was on student learning and the conditions and processes contributing to learning, the findings of the review have been organized and reported by student achievement of each goal followed by the relevant findings on the conditions and process. In this way, a comprehensive description, including overall achievement, achievement of major components, participation and completion rates, attitude, participation in related activities and student and partner satisfaction with learning is given for each goal. A sample of the description of student learning is included in the section on "Findings on Student Learning".

Information on conditions and processes affecting learning in mathematics has not been included in this description since the assembly and assessment of the data by the process committees have not been completed at the time of writing. Determination of the conditions and processes affecting each goal will be decided by the collective judgment of the committee rather than by statistical means.

Nature of Reports – Sufficient information was gathered through all of the measures to produce a variety of individual, program, school and jurisdiction reports. The relationship of the information gathered on all indicators to the various reports is as follows:

1. at the classroom level, individual confidential teacher reports were written using the data on classroom indicators;

2. at the program level, core program reports can be written using the student outcome indicators, the aggregated information from the teacher evaluation reports and selected home and school indicators;

3. at the school level, a school report was written on each goal of learning, including the information on all home and school indicators, student outcome and classroom indicators;

4. at the jurisdiction level, a system report was written using the information from all school system indicators as well as home, school, outcome and classroom indicators.

The Interpretative Process – Following measurement of all indicators, student achievement on the goals of learning will be evaluated through an interpretative process. An interpretative team, representing all educational partners, will be formed for each domain of learning (intellectual, social, personal and vocational) in each jurisdiction. Each team's task will be to review the results of each goal of learning, and decide whether the results were excellent, very good, satisfactory or need improving. To make this evaluative judgment the team members will familiarize themselves with the instruments by completing each instrument, by prior establishment of desirable and acceptable levels of achievement, by determining the relationship of outcomes to the comparators and also the interrelationship of the indicators, and by determining the conditions and processes affecting the outcomes. Finally, after having made a judgment about the results on each goal, they will determine strengths and weaknesses and identify strategies for improvement.

Following the interpretations in each domain of learning, the steering committee will review the results of each interpretation committee to insure consistency. Interpretative teams in each school will interpret school results through a similar process.

A Plan for the Future

To ensure that there is a follow-up to the evaluation, a modified strategic planning process has been incorporated as an integral part of the school system review. The general role of the planning team, representing all partners, will be to take the strengths and weaknesses identified in the interpretation process as well as other information and reorder curricular, human and physical resources to facilitate improvements in learning in weak areas and to maintain strong areas of learning. Specifically, the planning team will:

- review the mission, beliefs and goals of learning;
- review pertinent information internally and externally that impact on the system, including the results of the school system review;
- identify critical issues and concerns;
- establish improvement goals and strategies to achieve the goals.

Following the completion of these activities, action plans to implement the strategies will be developed by committees representing all partners. At this point, board consideration of the plan including costing will occur.

The School System Review

The study resulted in the development of a comprehensive school system review process based on student learning and the conditions and processes affecting learning. It has developed a way of measuring student learning with a system of indicators on a comprehensive statement of goals of learning, of measuring a full range of conditions and processes affecting student learning, and relating the conditions and processes to student learning. Sufficient data are produced by the various instruments and processes to generate individual confidential teacher reports, core program reports, school and school system reports.

The review system consists of four related components:

- a handbook of procedures for implementing the school system review process;
- supplementary handbooks on planning, communicating the results and providing inservice to staff;
- reports on the detailed findings for a number of the instruments and procedures;
- system and school reports on the findings of the school system review process.

Each of these components is described forthwith.

Handbook of Procedures for Implementing the School System Review Process

This document is a complete guide for implementing the school system review. It describes the process including timelines and personnel responsibilities, provides a detailed description for measuring, analyzing and assessing the data for all of the indicators and gives the findings for each of the measures. The appendices provide a detailed guide to the administration of each instrument, as well as a copy of each instrument developed for this study.

Overview of the Review Process – The handbook gives an overview of the review process and then provides a brief description of each of the components in the process: the goals of learning, the outcome indicators, measures and comparators, the condition and process indicators and their measures. The organization of findings by goal for a final report is described and the procedures for generating teacher, program, school and school system reports is given. Personnel responsibilities and timelines for administration are included. Finally, it describes a process for interpreting the results and developing a plan for the future.

Procedures for Measuring, Analyzing and Assessing the Data for All Indicators – The largest part of the handbook is devoted to describing how each indicator is measured, how the information is analyzed and displayed, and how the data are assessed and summarized for the interpretation committee. Finally, a summary of the data that were collected on each of the indicators in 1991-92 is displayed.

The Appendices – Further detail is given on the administration of the more complex measures in the review process. Generally, a document entitled "Guide to the Administration of the ..." is provided which gives the complete administration procedures for the instrument. Of particular interest in the appendix is a "Survey Resource Manual", developed by a reputable market consultant, which describes the appropriate methods for developing and administering a survey.

Supplementary Handbooks

Supplementary handbooks have been prepared describing in detail the planning process, the communication plan and the staff inservice plan on the findings of the review process.

Reports on the Detailed Findings for Some Instruments

Separate reports provide the detailed findings for a number of the instruments administered in 1991-92. They include:

- *School Effectiveness Opinionnaire* (Renihan & Sackney, 1989);
- *Satisfaction Survey*;
- *Learning Preference Questionnaire* (Australian Council for Educational Research, 1987);
- *Piers-Harris Children's Self-Concept Scales* (Piers, 1984);
- *School Subjects Attitude Scales* (Nyberg & Clarke, 1983)
- *Attitudes Toward the World of Work* (Maguire, Romaniuk, & MacRury, 1983).

System and School Reports on the Findings of the School System Review Process

The system findings on all of the indicators have been reorganized into a format based on each goal of learning. After a brief description of the school system review process, a full description of student learning with data from the appropriate instruments is given followed by the condition and process indicators that are contributing to learning and those that are not. In the discussion, the conclusion on student learning for the goal is given and plans for maintaining or strengthening learning are detailed. This report tends to be brief, relating all of the findings to one focal point, student learning, thus making sense of all of the data that have been collected. It is a comprehensive report to the public on the findings of the school system review.

The findings for each school on all indicators were also organized by goals of learning and a report was written on the findings for each school. These reports are for the use of each school community.

The Findings

The study was designed to produce two kinds of findings: the feasibility of the school system review process, and the state of student learning and the contributing conditions and processes. The findings on the process have resulted from professional judgments as the process was developed and implemented, whereas the findings on student learning are the data produced by the various instruments. This section gives the findings on the feasibility of the process and the system findings on a sample of the goals of learning.

The Process

Overall Design – The educational partners and the technical advisors supported the review process as a sound one including the overall design, based on the goals of student learning with a system of indicators of achievement, the instruments and processes, a way of interpreting the findings, and a planning process to utilize the findings.

The Goals of Learning – The goals of learning (intellectual, social, personal and vocational) were found to provide an overall balanced statement of goals. Within a number of domains of learning, there was also a balance of goals that included the development of skills, knowledge and attitudes.

Indicators, Measures and Comparators – In general it was found that there was a comprehensive set of indicators and appropriate measures and comparators to measure and interpret learning on most goals. There were some concerns with the measures for intellectual curiosity and the desire for lifelong learning, the measures for social learning and the comparators for learning in the intellectual domain. Recommendations for alleviating these concerns are made later in this summary.

The findings on the usefulness of the major data collection instruments and procedures follow.

The *Satisfaction Survey* produced data on a large number of indicators since the systems opted for a longer mail-out version rather than a shorter telephone survey. Its length and complexity meant that returns were slow and that the analysis took more time and resources than anticipated. In fact the extended analysis stretched the resources for the analysis of other instruments and processes.

The *School Effectiveness Opinionnaire* produced interesting data on school indicators. Its administration and analysis were straightforward and efficient.

Use of the diploma exam and achievement test jurisdiction reports, the *School Program Plan*, the *Summary of Enrollment by Age, Grade and Sex* as well as comparable data from Information Services, made it possible to calculate overall achievement, participation rates and completion rates for these subjects. Unfortunately, achievement on major course components of the diploma exams, such as the cognitive levels of knowledge, comprehension and higher level skills, cannot be determined in the same units as overall achievement. Overall achievement is given in percentage achieving the acceptable standard whereas achievement of major components is given as a raw score. The result is a loss in interpretative power.

Student achievement in nondiploma exam courses was measured by analyzing summaries of teacher-awarded final marks. The collection procedures unfortunately were not as well defined as they should have been causing delays in receiving the data and considerably more effort in analyzing the results.

The use of the *Classroom Observation Scales* to measure classroom indicators was conducted without difficulty. Although the coordinator had concerns initially about the time to carry out the evaluations, the school administrators readily accomplished the task since they would have devoted a similar amount of time to evaluation under "normal" circumstances. The inservice, structure and process were appreciated by

those involved in the evaluations. Use of self-evaluation by teachers, followed by external evaluation by school administrators and validation by system personnel provided the appropriate balance of participation from each level.

All school staffs completed a review of the curriculum articulation and sequencing in each of the core subjects. The outlined procedures as well as the program review guides provided the necessary structure to complete the review. The validation by system personnel in one instance and regional office/system personnel in the other instance were able to validate the internal findings by using the outlined procedures.

The implementation of the data collection procedures for all of the instruments in the same school year resulted in demands on classroom and personnel time. Fortunately each of the systems canceled all other evaluation activities for the 1991-92 school year making time available for implementing the review process. By using existing measures wherever possible and by administering the instruments to different grade levels, the time demands in any one set of classrooms were minimized. The impact on teacher time was found to be little different from the usual since surveys and program reviews had been the norm in both systems. Teacher involvement in self-evaluation did impact on teacher's time, but their appreciation in being more involved in evaluation more than compensated for the time spent.

Interpreting Learning – The process of interpreting the findings whereby the interrelationship of indicators, the relationship of results to comparators and the contribution of conditions and processes to make a judgment about the value of the results was found to be an appropriate process. This was confirmed by the technical advisors. The process to date has not been implemented so it is not possible to comment on the workability of process.

A Plan for the Future – This plan has been modeled after a traditional strategic planning process with the usual components. Overall the process is sound with an added advantage of being based on the strengths and weaknesses of student learning and the contributing conditions and processes. Thus, the plan for the future begins with the focal point of "student learning" and then identifies conditions and processes that need to be changed to improve achievement. The planning has not yet taken place so the feasibility of this process cannot be assessed.

Findings on Student Learning

To show the nature of the findings, student learning on a sample of goals is described. Goals have been selected where different measures have been used. Learning is described in mathematics, emotional well-being, and vocational learning.

Unfortunately, the findings on the conditions and processes cannot be included because the process committees have not completed assessing the data for inclusion with the outcome data.

Mathematics – Table 1 presents the indicators of student learning in grade 9 for the County of Lacombe. Learning is described by achievement, participation, completion, attitudes, participation in related activities and partner satisfaction.

Table 1

Student Learning in Grade 9 Mathematics, County of Lacombe, 1991-92

Grade	Indicators	Jurisdiction N	Jurisdiction (%)	Province N	Province (%)
9	achievement [1]	242		27,888	
	• total test				
	- acceptable standard		64.5		67.4
	- standard of excellence		6.6		8.9
	• problem solving				
	- acceptable standard		59.5		64.1
	- standard of excellence		8.3		10.7
	• subject matter				
	- acceptable standard		76.4		75.6
	- standard of excellence		9.5		12.7
	participation [2]		88.0		81.1
	completion [3]		61.7		61.3
	attitude [4]	244			
	• evaluation scale		mean 24.0		—
	• usefulness scale		mean 32.9		
	• difficulty scale		mean 20.1		—
	participation in related activities [5]	244	0.0		—
	educational partner satisfaction [6]				
	• students	247	79.5		—
	• parents	113	77.2		—
	• teachers	71	70.6		—

1 Achievement as determined by the June 1992 provincial achievement test where 85% of students are expected to achieve the acceptable standard and 15% are expected to achieve the standard of excellence.

2 Participation is the percentage of students writing the test.

3 Completion is the percentage of students eligible to write the test that achieved the acceptable standard.

4 Attitude was measured by the *School Subjects Attitude Scales* at midyear; a mean of 24 represents a neutral score whereas a mean above 24 represents a positive attitude toward a subject and one below 24 a negative attitude.

5 A per capita participation rate was determined by dividing the number of instances of participation by the grade enrollment.

6 The percentage of partner satisfaction with learning mathematics was determined by the locally developed *Satisfaction Survey*.

Emotional Well-being – Table 2 presents the state of students' emotional well-being in the County of Lacombe for grades 6, 9 and 12 in 1991-92. Emotional well-being is described by three indicators: self-concept, partner satisfaction and evidence of vandalism, suspension and expulsion.

Table 2

Student Emotional Well-Being, County of Lacombe
Grades 6, 9 and 12, 1991-92

Indicators	Grade 6		Grade 9		Grade 12	
	Female N=157 (PR)	Male N=158 (PR)	Female N=134 (PR)	Male N=135 (PR)	Female N=84 (PR)	Male N=104 (PR)
self-concept [1]						
• total test	69	68	60	39	65	56
• behavior	64	43	49	26	63	39
• intellectual & school status	59	51	58	34	55	35
• physical appearance & attributes	56	62	53	39	61	58
• anxiety	55	66	50	51	51	60
• popularity	30	39	44	26	46	44
• happiness & satisfaction	57	60	53	40	60	54

	Students			Parents			Teachers		
Grade	6	9	12	6	9	12	6	9	12
N	300	247	223	336	113	112	101	71	61
		(%)			(%)			(%)	
satisfaction with learning [2]									
• self-concept	73	82	83	83	73	79	89	89	80
• self-discipline	72	89	75	88	64	71	84	62	58
• responsibility	78	90	88	83	77	76	82	65	64
• goal orientation	73	85	75	77	72	65	78	60	65
• pursuit of excellence	71	84	75	84	62	60	–	56	56
• adaptability	69	91	80	91	79	75	91	92	71
suspension & expulsion [3]	Gr. 1-6 .5%			Gr. 7-9 4.1%			Gr. 10-12 1.0%		
vandalism [4]	.2%								

1 Percentile rank of group means for self-concept determined by the *Piers-Harris Children's Self-Concept Scale.*

2 The percentage of satisfaction with learning desirable characteristics related to emotional well-being as determined by the locally developed *Satisfaction Survey.*

3 The number of instances of suspensions and expulsions divided by the enrollment of each group.

4 The number of instances of vandalism divided by the total enrollment in grades 1 to 12.

Table 3
Vocational Learning in Rocky Mountain School Division, Grades 9 to 12, 1991-92

Grades	Indicators	Jurisdiction (N=105) (%)	Province (N=11,499) (%)
10-12	work experience		
	• achievement [1]	88.0	87.3
	• participation [2]	13.1	10.1
	• completion [3]	68.7	78.3

12		Students (N=179) (%)	Parents (N=73) (%)	Teachers (N=37) (%)
	partner satisfaction [4]			
	• prompt	81.0	73.6	57.9
	• neat	87.9	80.2	77.4
	• industrious	67.2	71.1	55.4
	• persevering	84.4	77.5	56.4
	• work habits, attitudes, skills and knowledge	76.3	69.7	57.6

9 & 12		Grade 9		Grade 12	
		Female (N=91) (PR)	Male (N=104) (PR)	Female (N=93) (PR)	Male (N=79) (PR)
	attitudes [5]				
	• preparation	39	52	38	46
	• interest	34	43	20	27
	• diligence	36	38	44	36
	• laziness	64	69	57	50
	• job security	73	68	68	62
	• positive employer characteristics	52	51	38	32
	• independence	67	63	41	53
	• money	60	50	38	49
	• ambition	71	62	47	56
	• locus of control	75	71	71	67
	• confidence	28	39	23	22
	• negative employer characteristics	79	74	70	62
	• social relations	44	36	27	33
	• unemployment	66	60	76	66
	• general attitudes	35	58	60	46

1 Percentage of students achieving 50% or higher in work experience.
2 Percentage of enrolled high school students taking the course.
3 Percentage of students that initially enrolled in work experience and achieved 50% or better.
4 Percentage of satisfaction with learning desirable characteristics related to work as measured by the locally developed *Satisfaction Survey*.
5 Percentile rank of group means for student attitudes determined by the *Attitudes Toward the World of Work*.

Vocational Learning – Table 3 presents student learning in the Rocky Mountain School Division for grades 9 to 12 in 1991-92. Vocational learning is described by achievement, participation and completion in work experience, by partner satisfaction and by attitudes to work.

Conclusions

The development and implementation of the school system review has resulted in significant conclusions. First, the process is pedagogically sound because the focal point of the review is student learning. Second, although most evaluation systems heretofore have focused on the process of education, the school system review more appropriately focuses on student learning and relates conditions and processes to achievement.

Implementation of the school system review has been very demanding, but it was found to be feasible in terms of clarity of processes, time and personnel for implementation and the minimal time it takes from classroom learning. Although there were significant time demands on school administrators and staffs, the nature of the involvement resulted in a greater level of teamwork and enhanced sense of ownership of the evaluation and its results.

The findings from the development and implementation of the process show that a comprehensive system of indicators to describe learning and the contributing processes is possible. The study has identified a significant set of indicators of learning and the conditions and processes affecting learning that are measurable and, when seen as a system, tell a comprehensive story about student learning.

The review process was very effective in maximizing the use of the data to generate teacher, school, program and school system reports.

Overall, the development and implementation of the school system review has been very successful resulting in a sound and feasible review process in the two jurisdictions.

Implications

The findings of this study have implications for education in general and specific implications for the two participating systems, other jurisdictions and the province.

The design and findings clearly imply that the focus of an evaluation system in educational institutions should be on student learning. Although the "process" evaluations that have occurred in the past are designed to improve the process and hence learning, the time has come to relate process evaluations and student learning in a more direct way.

Attempts to explain student achievement or the health of a school system or education in the province on the basis of one indicator are clearly inadequate. Use of other indicators along with achievement provides a better picture of achievement. The review process shows that it is possible to measure affective and behavioral goals and, therefore, this study has implications for school systems to evaluate more than cognitive goals.

Evaluation activities should be seen as a system of interrelated components which can produce a variety of outcomes. Typically, evaluations are one-purpose activities, for example, teacher evaluations, program evaluations, review of diploma results and satisfaction surveys. Not only is this an inefficient way of conducting evaluations, but it does not reveal the interrelationships of the findings from the various evaluation activities. Through the review process, a variety of reports can be produced simultaneously that show the relationship of conditions and processes to outcomes.

The design and findings show an appropriate emphasis on evaluation, planning and implementing improvements. While the review process requires a concerted effort on evaluation for one year, it frees up four years for planning and implementing improvement. Overall it will mean that system and school administrators and staff will be able to devote more time to improving learning. These improvements will result from more comprehensive data and, therefore, will stand a better chance of improving learning.

The review will provide more honest information for accounting to the public. Current practice of reporting one indicator presents only a part of the situation to the public. Reporting a system of indicators tells a more comprehensive story.

For other school jurisdictions, a sound and feasible school system review process is available for use. It is not suggested that the full review be simply implemented as is. What is suggested is that the five components are integral to the process and should be a part of any review. If a jurisdiction wanted to implement a system review, it would be necessary to study each of the components to determine whether each would satisfy local needs. For example, the following questions could guide a review of the components. Are the goals of learning appropriate? Are indicators of learning appropriate? Are there better ways of measuring the indicators? In this way, the overall review process could be tailored to address local circumstances.

For the province, the study shows that it is possible, even within current evaluation programs and information systems, to report on the health of the education system on a simple set of indicators. It is possible right now to report on participation and completion rates along with achievement on the diploma exams. It is also possible with data provided by Information Services to provide provincial results on achievement, participation and completion rates in all senior high courses. Using what is currently available, the province could provide better provincial data for its own planning and for public accountability.

Recommendations

To improve the school system review process, modification should be made to some of the instruments for measuring the indicators.

- The satisfaction survey should be shortened and the information should be collected through a telephone survey. An investigation of the costs shows that a telephone survey is little if any more expensive and a considerably more efficient way of collecting data.

- Other ways of measuring intellectual curiosity and the desire for lifelong learning should be investigated. The three current indicators, participation in related activities, educational partner satisfaction and involvement of graduates in further education, are insufficient to describe learning.

- The data collection and analysis procedures for learning in the nondiploma subjects should be further developed.

- The technology use survey had to be postponed because of the strike. It should be developed for future use in school system reviews.

- The use of the Fort McMurray Public District's *Social Skills Diagnostic Screen* and the processes for measuring social learning should be investigated. This would add a dimension of achievement in social learning to our current indicators of partner satisfaction, achievement of desirable characteristics and participation in related activities.

- The use of exemplary pieces of student work (paintings, videotapes, writing) in various subjects should be investigated for use in interpreting student learning as recommended by the technical advisors.

- The two school jurisdictions should monitor their activities in the four intervening years to maintain the integrity of the review process.

It is recommended to Alberta Education that all achievement test and diploma exam results be reported in the jurisdiction summaries in the same units. If the results on the major components were reported in the same units as overall achievement, namely the percentage achieving the acceptable standard and the standard of excellence, the results would be more meaningful.

Further it is recommended that Alberta Education make data available to calculate participation and completion rates.

Lastly, it is recommended that Alberta Education report participation and completion rates in jurisdiction reports along with achievement on diploma exams, and finalize a set of provincial indicators as a result of the Educational Quality Indicators initiative.

Follow-up

The intent is to carry out the school system review process every five years with the intervening years being devoted to implementing the improvement plans. To insure that the integrity of the review process is maintained, the systems should monitor the system activities in the four intervening years to insure that the main thrust is improvement of learning and that "results on single indicators or single incidents" do not cause a reversion to former evaluation activities. The monitoring should, on the other hand, insure that required evaluations are identified and conducted. For example, in the intervening years it may be observed that student performance in mathematics has suddenly dropped. That would merit a review. Any such evaluations would be made on the basis of need rather than traditional scheduling of program or school evaluations.

Concluding Statement

The study has resulted in the development of a comprehensive school system review that examines the full operation of a school system in one process. Accountability and general public support for education have the potential to improve as a result of reporting the comprehensive findings and improvement plans. The interest of parents in the school systems has been heightened because of their involvement in the project and growth in their knowledge and contribution to education has occurred. With its focus on student learning and related conditions and processes, the review is a powerful tool to describe the state of student learning, to identify strengths and weaknesses, and through planning and the luxury of time, to make improvements in learning.

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District and School Profiles

for Quality Education

Grande Prairie School District No. 2357

The Grande Prairie Educational Quality Indicators Project developed prototype annual school and district profiles to provide interested stakeholders with current and valuable information to judge the health of their educational system and to identify areas needing attention. Annual feedback allows schools to become more efficient and effective in delivering education to their clients. The report outlines the preliminary work in involving educational stakeholders to identify indicators of educational quality within the school district and describes methods to measure and report information in a manner that is meaningful and useful to stakeholders. The benefits of gathering and using indicators to assess educational quality and to plan educational improvements is also discussed.

Rationale

The Grande Prairie Public School District became involved with the three-year Educational Quality Indicators initiative specifically to meet four educational goals. First, the district was interested in developing a set of indicators of educational quality that reflect the views of the local educational stakeholders. Second, the district wanted to report the comparative results of the local indicators in an annual document which would reflect the quality of education within our district. The third goal was the development of a process to use annual reports to plan educational improvement within the district. The final goal was to test the indicators and processes in another school district to test their transferability.

Purpose

The Educational Quality Indicators Project was designed to identify, measure and report on indicators of quality education as defined by our educational stakeholders in the Grande Prairie Public School District. During the three years of the project, contact was made with approximately 4,000 educational stakeholders in the city. The contact made with the stakeholders provided the project team with the indicators used and also the level of stakeholder satisfaction with these indicators. The project developed measures for all the identified indicators that span the

cognitive, affective and behavioral domains. The annual reports on the indicators and their measures will provide stakeholders with historical data on which to assess and improve education in the city schools.

Two assumptions were made at the onset of the project. The first was that educational stakeholders wanted and needed data which they could understand and which they agreed reflected the educational health of the schools and the school district. During the interview process in the first year of the study, the project team found this assumption to be correct. All stakeholder groups expressed confusion and frustration with the use of standardized tests as the main indicator of student success in the schools. They expressed a strong desire to use other measures which more clearly reflected the success of the schools and their students.

The second assumption was that the existing stakeholders did not have a clear understanding of the present educational system and how it performed. This assumption also proved to be somewhat true when the team interviewed stakeholders who did not have direct contact with the system. The general public and parents seemed to base many of their views on the system they encountered when they were students in school. It was also apparent to the project team that employees and students did not have an understanding of the educational system or product beyond their own school building.

Design

The Grande Prairie Project was designed in three phases, one for each of its three years. During the first phase, the project team conducted interviews with representative groups to establish indicators of quality education which would serve as the basis for the annual profiles. The interviews were conducted using the nominal group technique and resulted in the team making contact with more than 1,900 stakeholders. The team also conducted an extensive review of the literature related to effective schools and quality education. The final objective of the first phase was to have a workable set of definitions and indicators to continue into the second phase of the project.

Phase two was dedicated to developing workable criteria for measuring the indicators identified during phase one. The initial task for the team was to cluster the indicators under larger indicator titles. The final result of the clustering process was the establishment of four areas: student achievement, school climate, quality of instruction, and funding. The second task for the team was to develop a measure for each indicator and to explore different methods to collect information on the indicators. The stakeholder satisfaction survey was also developed during phase two as an instrument to contribute to many of the indicators identified.

The final phase of the project was designed specifically to develop a method of reporting to stakeholders on the identified indicators. This phase also resulted in work with the district and the schools to develop effective methods to gather and report on the data required. The result of the final phase saw the production of school and district profiles in our pilot schools and in the district.

School and District Profiles

Table 1 presents the quality indicators, how they are measured, and their sources. Student achievement includes performance on provincial achievement tests and diploma exams, success of graduates, fitness, teacher marks, affective education, retention and attendance. School climate includes student and staff morale, turnover, behavior, and dropouts. Quality of instruction includes professional attributes, teacher inservice, instructional methods and expectations. Funding includes cost efficiency and staffing.

The project produced three major products. The first was the stakeholder satisfaction surveys. These questionnaires were designed to obtain feedback on the four main indicator groups. Four types of stakeholders were surveyed – parents/ guardians, students, district staff, and the public. The questionnaires will be evaluated at the end of each year to determine what changes need to be made for the next survey. The surveys were delivered to the schools where participants were asked to record their answers on a scantron computer score sheet. This method of collecting and recording the stakeholder responses was determined by the team to be very successful. Two groups of stakeholders did not fill out the computer score sheet directly. The general public was contacted by trained student operators and their responses recorded on the computer sheets. The parents of the Composite High School were also contacted by a trained survey operator. Students of the other pilot schools were asked to deliver their parent surveys directly and all survey sheets returned to the school in good condition allowed the student's name to be entered into a cash draw. This format for returns was very successful at the junior high school level. Another product from the surveys was the adaptation of existing computer software packages to produce the graphed results of each question in the survey.

Table 2 presents the stakeholder responses to the May 1991 survey. Annual survey results are an integral part of school improvement planning. Survey results flag areas that may become the focus for annual school or district improvement plans. Once an area is flagged and investigated using other indicators, it may become the target for improvement. The surveys also provide feedback on the results of the improvement action plan.

The second major product was the individual school profile. These profiles serve as the communication link between the stakeholders and the school on the quality of education within the school and the actions schools are taking to maintain or improve that quality. The school profiles include reports on indicators requested by the school district as well as indicators judged valuable by site teams. A subsequent product from the school profile will be the development of a software package that will allow schools to produce profiles with minimum labor and low cost.

The third product was the comprehensive school and district profile. This profile reported all the indicators identified by the stakeholders to reflect a quality education. Each indicator has a method of collecting and reporting representative data. A major software package is being developed to allow schools and the school district to report on all indicators in an efficient and effective manner.

Table 1

Quality Indicators

Indicator	Measures	Sources
Student Achievement		
	provincial achievement tests	grades 3, 6 & 9 students
	diploma exams	grade 12 students
	post graduate success	graduate questionnaire
	Canada Fitness Award	medals count
	teacher assigned marks	marks table
	affective education	programs, awards, participation
	retention rates	district statistics
	attendance	district statistics
School Climate		
	climate	questionnaire
	student morale	questionnaire
	staff morale	questionnaire
	turnover	district statistics
	behavior	district statistics
	attendance	district statistics
	lates	district statistics
	expulsions	district statistics
	dropouts	district statistics
Quality of Instruction		
	professional attributes	personnel records
	inservice	budget expenditures
	substitute days	school reports
	instructional methods	site administrator
	expectations	school/district policy
	monitoring	site administrator
	curriculum	administrator
Funding		
	cost efficiency	secretary-treasurer
	staffing	personnel officer

Table 2

Grande Prairie Stakeholder Satisfaction in May 1991 (Percent)

Indicator	Parents (N=456)	Elementary Students (N=531)	Secondary Students (N=571)	Staff (N=253)	Public (N=176)
Student Achievement					
Satisfied	66	76	54	75	55
Dissatisfied	12	14	29	12	18
Need Information	14	9	14	8	26
Unimportant	0	0	0	0	1
No Response	8	2	3	6	1
School Climate					
Satisfied	73	74	59	62	57
Dissatisfied	10	14	23	25	18
Need Information	9	9	12	6	21
Unimportant	0	0	0	1	2
No Response	8	3	6	6	1
Quality of Instruction					
Satisfied	67	75	62	62	53
Dissatisfied	9	13	27	26	15
Need Information	16	10	11	5	29
Unimportant	0	0	0	1	1
No Response	8	2	0	6	2
Funding					
Satisfied	69	65	69	48	76
Dissatisfied	8	22	24	35	8
Need Information	12	10	7	8	13
Unimportant	1	0	0	2	3
No Response	10	3	0	7	0

Note. Percentages may not total 100 due to rounding.

The products developed are invaluable when used to accomplish the intent of the project – to provide stakeholders with quality information on which to assess and improve the quality of education in the school district. The ultimate product of the project is the action plan. The plan for using the products of the project is a four-step process. The first step involves the formation of site-based improvement teams composed of stakeholders who assess the information available to them in the comprehensive school profiles. This site-based team then targets areas to improve for the upcoming school year. Once the areas of interest have been targeted, the second step of the process is initiated. This step involves the formation of an action team to develop a strategy that involves an action plan, timelines and an evaluation method to address the area of concern. Once the action plan has been developed, the third step of the process is to formally implement the action plan. The fourth and final step is to assess the results of the improvement action based on the indicators developed from the project. The final assessment may result in abandonment of the action plan if the improvement measure is negligible or inefficient due to labor requirements to affect acceptable change, or altering the existing action plan to provide more effective results or, finally, celebrating the success of the action plan.

The format for using the products will provide each school and the school district with the ability to address areas of need specific to their own environment. It is expected, however, the school district will require all schools to report on common indicators of educational quality.

Conclusions

The implementation of an action plan involved the Grande Prairie Public School District and the County of Grande Prairie. Each district provided volunteer pilot schools to begin the development of school profiles. Once identified, our project team members informed the school administrators of the collection, presentation and process involved in the development of school profiles. The comprehensive school and district profiles contain the results of all annual data collection and are accessible to all stakeholders in the school district upon request. The format of the district report does not specifically identify individual schools but blend the results into a district profile. Public profiles will be condensed versions of the comprehensive school and district profiles. The public profiles will use short descriptions, charts and graphs to communicate on various quality indicators.

Individual school profiles report on specific areas as directed by the superintendent and also reflect the needs of the individual school community resulting in different profiles for individual schools. The quintessential objective of the school profile is to provide school stakeholders with information that is meaningful and useful to them in planning school improvement and measuring the educational health of their schools. This objective is the driving force that necessitates collaboration among stakeholders to monitor improvement projects and to initiate required changes.

Implications

The Grande Prairie Quality EQI Project initiated a process through which the health and direction of education became the communication of the performance of education in the district to stakeholders. The satisfaction survey results emphasized the need of the public and parents for more information on many of the identified indicators. The collection of the data will become much more efficient within the schools and more centralized at the district office. The use of computer technology to collect and report on the data will provide all stakeholders with information that can be easily accessed and properly interpreted and used in assessment and improvement of the district. This electronic data gathering and storing method has put the Grande Prairie School District in an excellent position to participate in the electronic information exchange advocated by Alberta Education.

Recommendations

The sample of the general public in the project did not include a wide variety of business and industrial representatives. Future expansion or replication of the study should include representatives of post-secondary educational institutions and the general public. The satisfaction survey worked well for the initial gathering of information on the identified indicators. The project team recommends the development of a validation process of each of the questions on the questionnaires over time to further enhance the instruments. Finally, a strong recommendation is given to the ongoing annual collection and publishing of educational indicators for the purpose of improving the quality of education in the school district.

Follow-up – Ongoing Project

The EQI Project is simply the start of a major effort within our district. Much work is ahead for stakeholders to use the indicators developed during the study to plan and monitor educational quality. As in any major educational thrust, stakeholders must be reinforced and encouraged to persevere. It is incumbent on the administration and the board of the school district to publicly maintain support for the direction of this project toward quality education.

The Grande Prairie Public School District is committed to the development of profiles for ongoing use in the district. The profiles will be adjusted to reflect the thirteen priority directions outlined by Alberta Education in *Achieving the vision 1991 report*. The Board of Trustees of the Grande Prairie Public District unanimously passed a motion at the December 8, 1992 meeting which directed each school to produce annual profiles commencing in the 1992 -1993 school year.

Concluding Statement

The initial efforts required to develop an indicator collection and reporting process within a school district seem overwhelming. The process must begin by developing a breakdown of the steps required to reach the goal of the project. Once these steps are separated, action plans can be developed to gain numerous small victories in the progress toward the overall objective of developing school improvements through the collection and reporting of educational indicators.

The production of annual school and district profiles will be a continuous program in the Grande Prairie Public School District. The instruments will provide interested stakeholders with current and valuable data to not only judge the health of their educational system, but also to identify specific areas in need of attention. Annual feedback allows the schools to measure progress or the effect of efforts to improve areas of education. If the feedback indicates the efforts have not produced the expected or desired results, school teams may decide to abandon or change their action plans. Feedback enables schools and school districts to become more efficient and effective in delivering education to their clients. A more effective and efficient educational system, as identified by stakeholders, will result in a positive educational experience for all.

A Collaborative Model for School and Program Evaluation

Lethbridge School District No. 51

In recent years there has been a marked increase in the emphasis and expectations for school and program evaluations. Throughout much of Alberta, the approach used has been predominantly a "top down" process with the planning and procedures carried out almost exclusively by personnel from Alberta Education or district central offices with assistance by external resource persons. A meta-evaluation, conducted by Lethbridge School District No. 51, concluded that limited changes were being realized by the evaluations. Teachers and school-based administrators were not actively involved and hence gained little from the exercise. A study of the related literature and procedures used in other locations led to the development of a "collaborative model" to empower school-based personnel to be actively and professionally involved in their school and program evaluations. The use of "educational quality indicators" served as a key component of the model.

Rationale

The evaluation of teaching and of teachers has received in-depth study but little effort seems to have been put into whether the models and procedures used for the relatively new focus on school and program evaluations are consistent with the findings of educational research. Because the stated goal of evaluation is almost always school improvement, there is a need to consider and utilize the research on quality indicators, school effectiveness, and school improvement. A collaborative model would ensure a "buy in" by those involved. This is essential as evaluation alone does not cause improvement.

In the province of Alberta, as in other Canadian provinces and a number of American states, there has been an increasing emphasis and expectation from governments that school jurisdictions will develop and carry out formalized procedures for evaluation, including the evaluation of students, teachers, programs, schools, and school systems.

The Lethbridge model involved the use of a large team (up to 55 persons) from the school district central office, other schools, Alberta Education offices, and the University of Lethbridge, spending up to three weeks of time on site for the school evaluation process. A common concern was whether the model (which was

extremely expensive in terms of professional time and expertise) was producing payoffs in professional growth and development Perhaps the most significant concern was with the problem of implementing the recommendations emanating from the evaluation report.

Administrators and boards need assurance that their models of school and program evaluation are consistent with increased effectiveness and school improvement as a result of the investments of professional time, expertise, and budget dollars. Stufflebeam and Shinkfield (1985) affirmed that if evaluations are to be useful and provide proper direction and guidance, "the evaluations themselves must be sound" (p. 183).

Purpose

The purpose of the Lethbridge School District No. 51 project was to develop a more effective model for school and program evaluation. Consequently, the following research questions were addressed.

1. Is the current Lethbridge School District No. 51 model for school and program evaluation consistent with the literature on indicators of effectiveness, quality, and school improvement?

2. Are the procedures, instruments, and data used in the Lethbridge School District No. 51 model valid and reliable?

3. Does the current literature suggest characteristics or criteria of more effective and efficient models for school and program evaluation, in terms of indicators of effectiveness, quality, and improvement?

4. If the findings for the above indicate "yes", can these findings be applied to the development of a collaborative model for a school system evaluation of the art and library programs?

Design

Warnica (1989) completed a case study of the Lethbridge model for school and program evaluation. It was primarily qualitative in nature, but included some correlations. The major areas of educational literature reviewed as a basis for this study and the proposed model were: school and program evaluation – theory and practice; effective schools research; indicators of effectiveness or quality; and, evaluation models, criteria, and standards.

After his review of the literature and based on his career experience, Warnica (1990) concluded that the decision on the debate related to the external versus internal evaluation model falls clearly on the side of the school-based model. The convincing arguments of Boud and Donovan (1982), Common (1987), Herman (1986), Toffler (1980), Eisner (1985) and others provide sound reasons for a model which involves more active and professional participation of school-based

personnel. The empowerment of school-based teachers and administrators, and the school as the focus of action and development offer the greatest potential for real growth and development of the school, its staff, and its programs for students.

Although the intent of the original research was to focus on school evaluation, senior administrators and trustees directed the move toward program evaluation. Using the study as a basis of information, work then proceeded on the application of this research to the development of a collaborative model for art and library program evaluations. These programs were selected for a number of reasons:

- a system perceived need to evaluate the effectiveness of these programs;
- availability of central office leadership; and
- concerns about the lack of expertise of the generalist teacher in the area of art evaluation as well as the lack of available research on this topic.

Acting upon recommendations from the administration, the Board approved the development and implementation of a new evaluation format. Steering committees, consisting of generalist and specialist teachers representing elementary and secondary schools, administration, and Alberta Education personnel, were organized for each program area. The committees were given instruction and direction on the development of quality indicators. Both committees proceeded through the steps outlined in the art program flow chart (Figure 1).

During the second year of the project, a model was developed and field-tested for evaluating the two identified programs. The collaborative model provided the structure for application of the effective schools research about evaluation and the use of indicators of effectiveness or program quality. Key components in the development of the educational quality indicators included the district-based staff, the community and, the resulting determination of comparators, standards, and quality outcomes for all programs.

Following the collection of data through interviews and the administration of questionnaires to the various stakeholder groups, analyses were conducted. As a result of the findings, a system- and school-based action plan was developed and initiated.

As a result of staffing changes, identified system needs and the availability of time, the art program became the focus of the project in the third year. Work continued through the various steps outlined: the identification and verification of the student outcomes; and, the identification, development, and refinement of evaluation tools and processes. System and teacher inputs were reexamined and the instruments modified as required.

Findings

The findings of the case study indicated that a new model for school and program evaluation should be developed. The result of the research was the development of a collaborative model which places much greater responsibility and control in the hands of the stakeholders – school-based administrators, staff, students, and parents. They became major participants and decision makers in school and

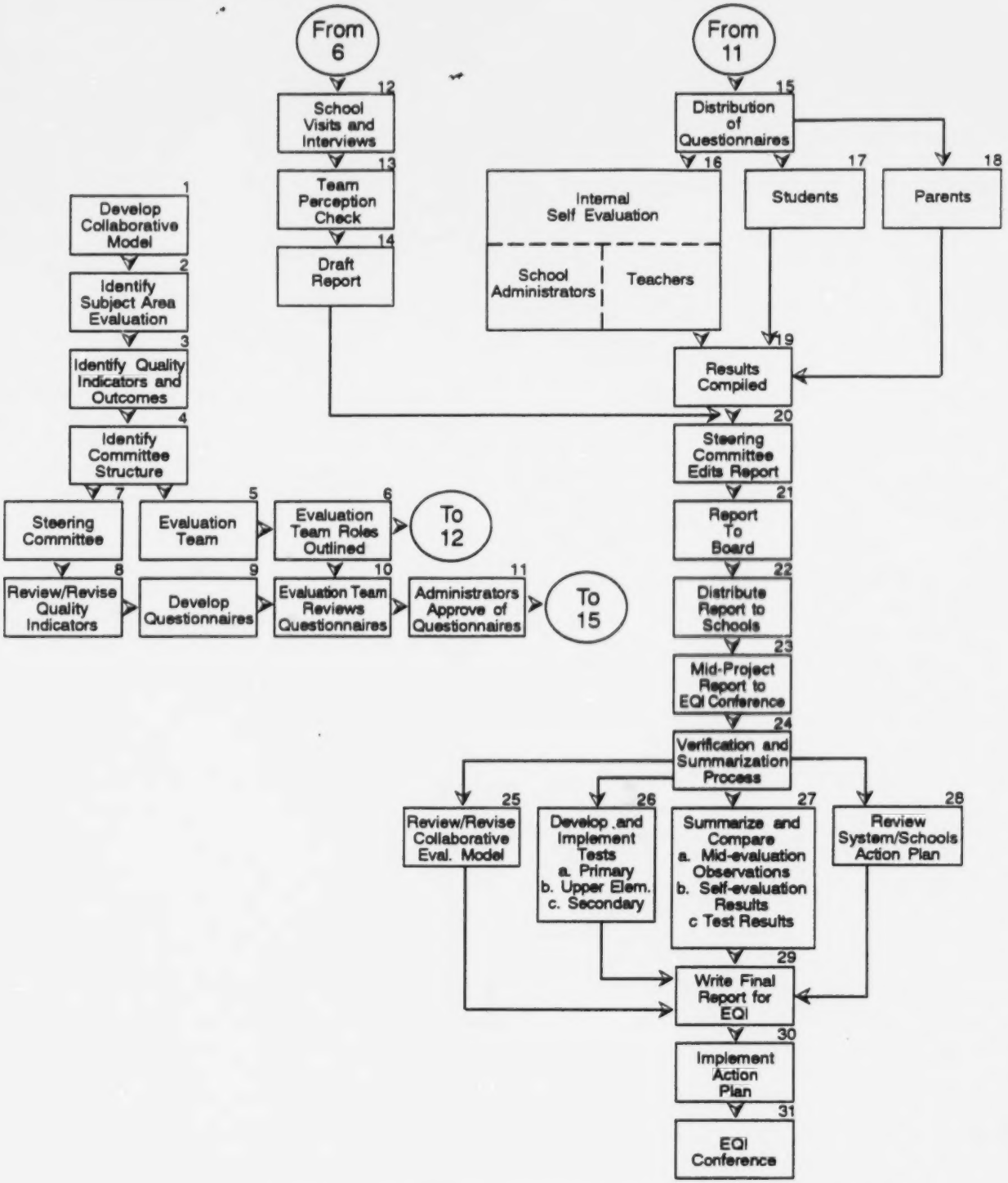

Figure 1: Art Program Evaluation Flowchart

program evaluations, in identifying areas of program and professional growth, and in bringing about change. The model rests upon certain basic assumptions grounded in the literature on school effectiveness and school improvement. The school is the primary unit of decision making (Smith & Purkey, 1985). If changes are to occur, they require ownership that comes from the opportunity to participate in defining change, and the flexibility to adapt it to individual circumstances. Change does not come from externally imposed procedures (Fullan, 1982).

Schools need to identify areas requiring improvement and work actively toward this end. Empowerment of school-based staff and administration is fundamental to reviewing and improving schools. As a perception check, a follow-up questionnaire was distributed to the stakeholders at the conclusion of the art evaluation. The results from this questionnaire, in conjunction with a review of the content and the initiation of the program action plans developed by the schools, confirmed that the collaborative model was preferred.

The collaborative nature of this approach resulted in a "buy in" by stakeholder groups. The development and use of quality indicators was positively received and their use incorporated into assessment procedures.

As predicted by the art steering committee, evaluation procedures were identified as an area of concern. A third of the over 3,000 students surveyed did not understand how their report card mark was established; only 7% indicated a clear understanding of the process. Most parents (80%) were not aware of how their child was being evaluated and 37% of the teachers questioned indicated problems with evaluation procedures. A follow-up questionnaire addressed to teachers and administrators confirmed that through the application of the collaborative model and the identification of quality indicators, a positive change in attitude regarding assessment in art had taken place.

The model presented in Figure 2, although originally developed for an art program, is basically a generic model that can be applied to other subject areas with few modifications. Assessment procedures to measure the desired student outcomes can be identified and/or developed.

The Art Program Model

Figure 3 presents the Results-based Art Program Plan, which is a refinement of Figure 2. It does not include the inputs of the home, community, and society, some of which are inherent under other headings. This model encourages the teacher to identify his/her individual mission statement/belief. It stresses the importance of inputs into the program; the need to take students from where they are with the preassessment and to track their growth along the continuum. The plan assists teachers in focusing on the desired student outcomes and, through the use of a variety of assessment procedures, determine the actual student outcomes.

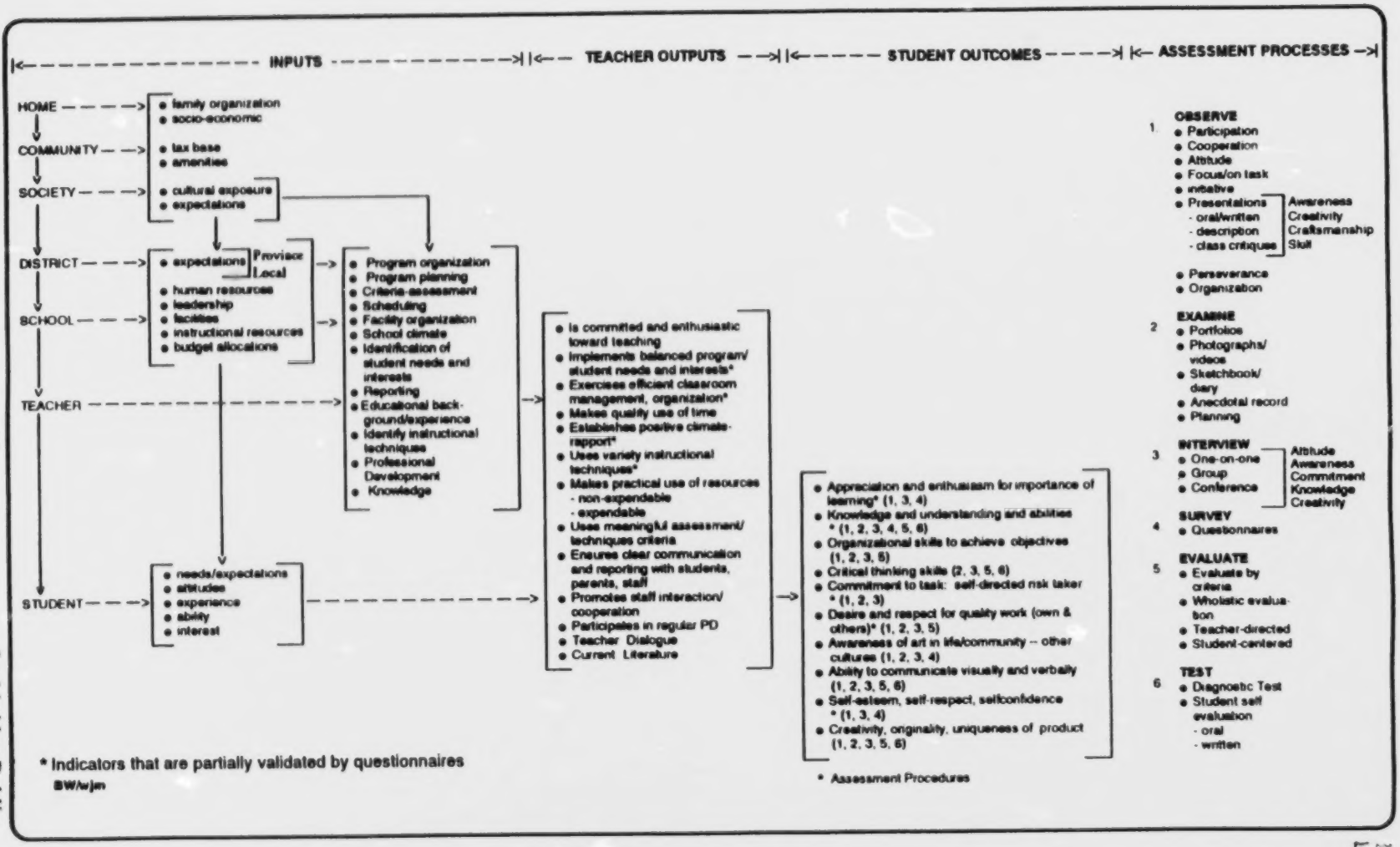

Figure 2: A Collaborative Model for Art Program Evaluation

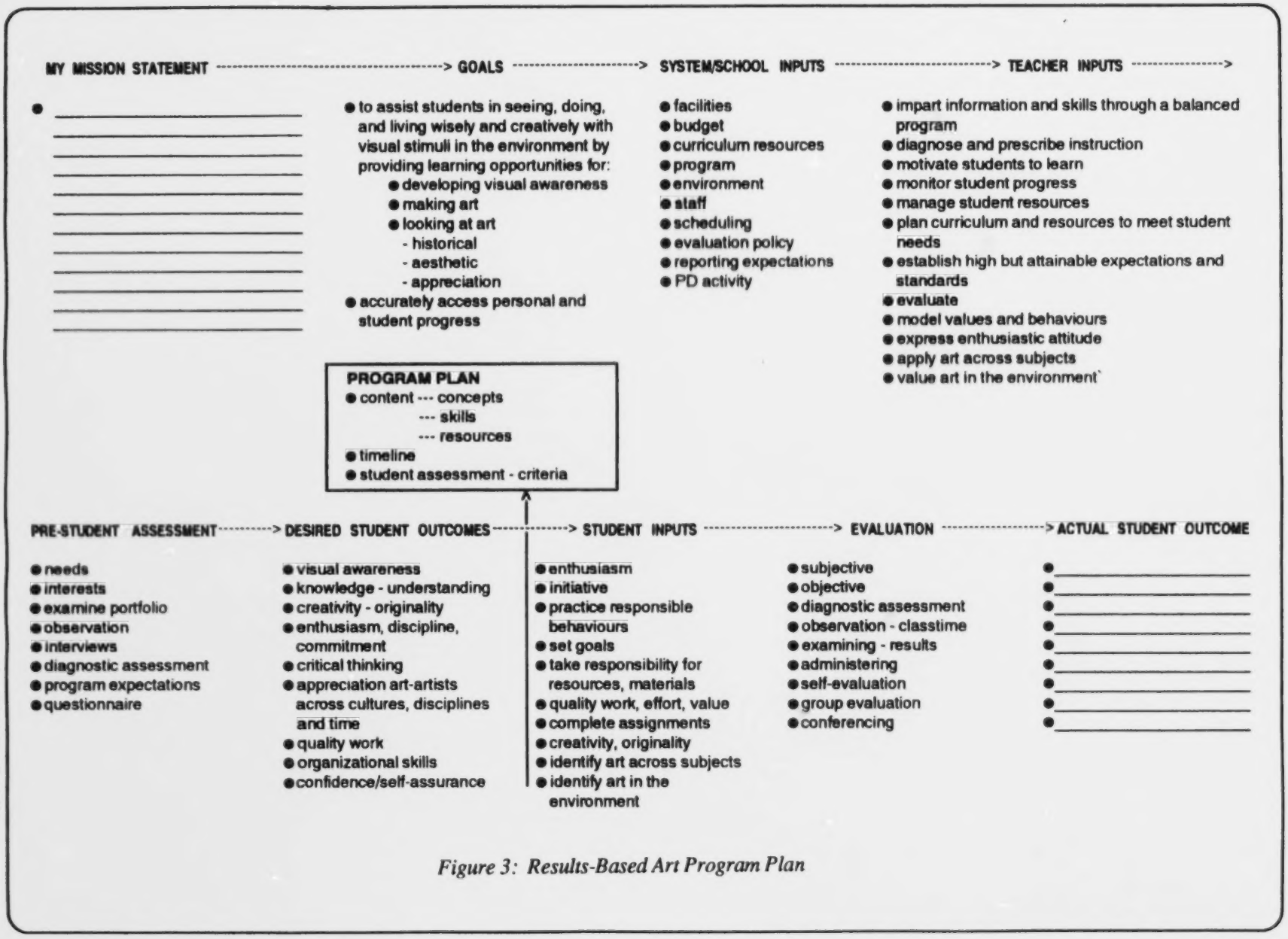

Figure 3: Results-Based Art Program Plan

Implications

1. Based on the current literature and the practical application, it has been demonstrated that a more effective model for school and program evaluation involving collaboration and the identification of educational quality indicators can be designed and implemented.

2. The development of a clear set of standards or indicators of educational quality would be a desirable step in moving the evaluation model on to more objective ground, and would allow much more professional involvement of school level personnel.

3. Although the art program evaluation was a practical application of the research, the model developed could be applied, with few modifications, to other subject areas. However, assessment procedures would have to be identified/developed for the different programs.

4. Community/stakeholder involvement in the evaluation process has proven to be very valuable input and should continue to be utilized.

Recommendations

1. School and/or program evaluations should be designed using a collaborative model.

2. School and/or program evaluations should include the development and use of educational quality indicators. A vital component is the involvement of stakeholders in defining what constitutes quality.

3. School and program evaluation should be an ongoing process and not simply an event which takes place once every five years or so. An evaluation model should ensure that program and school evaluation becomes a natural and vital part of the curriculum and instruction cycle.

4. The program evaluation model that has been developed should be applied to other program areas in Lethbridge School District No. 51 and is recommended for other jurisdictions.

5. The results of this project should be disseminated to other jurisdictions by Alberta Education.

6. Further development and validation of the art program evaluation model should continue, particularly with regard to the refinement of the educational quality indicators and the verification of student outcomes through assessment procedures.

7. Teacher training in the use of a variety of assessment procedures that can be employed in measuring whether students have achieved the desired outcomes is essential.

Follow-up

Lethbridge School District No. 51 is continuing to expand the use of this model to other program areas. Revisions/refinements to the collaborative model will be an ongoing process. The identification and development of assessment procedures for the measurement of student outcomes will be expanded to other programs.

Interest has been expressed by the Calgary Public and Catholic EQI Project members to work cooperatively with Lethbridge to merge the two projects. This possibility will be explored.

Closing Statement

As a result of the research project, it has been determined that the former model of program and school evaluation was not consistent with the literature on indicators of effectiveness, quality and school improvement. New evaluation models should move away from the heavy emphasis on a "top down" approach to encourage and empower school staff and administrators to be actively involved and interacting in assessing the effectiveness of their own programs and in planning their improvement. A collaborative model for school/program evaluations in which the use of "educational quality indicators" is a key component, is more effective.

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A Collaborative Teacher Evaluation Model:

Teachers Do Make a Difference

Spirit River School Division No. 47

The Spirit River School Division Educational Quality Indicators Project involved the development and validation of a set of indicators to assess teacher effectiveness in a formative process. A major component of this project was the process. The extensive involvement of teachers in the formative evaluation aspects of the project impacted upon teacher effectiveness in the classroom and student outcomes. We intend to continue this project for three more years to determine its potential for export to other school jurisdictions within Alberta and elsewhere.

Introduction

Rationale

We believe that teachers do make a difference, for as Broudy (1975) stated: "The teacher is still the key to schooling: with good teaching, almost any curriculum, school organization, and administrative invention seems to succeed" (p. 64). Experience and the literature clearly suggest that teacher and administrator involvement in the selection of educational indicators was critical to the success of a project of this magnitude. For any project involving key components of action research, it was necessary to gain acceptance, involvement and the positive initiative of staff. The project focused on professional development and staff inservice. A collegial, nonthreatening model for more effective teaching and benefit to students using formative supervision and observation was developed and implemented over three years. It focused the attention of the system on the wider range of student educational outcomes, affective and behavioral as well as cognitive.

Purpose

A wealth of information on effective teaching behaviors, substantiated by practical research, has emerged over the last few decades. The Spirit River School Division Indicators Project involved identification and validation of a set of indicators that can be used to assess teacher effectiveness. The criteria by which to measure teacher effectiveness are of central importance to the concept of teacher evaluation

and effectiveness. Normed measures of teacher behaviors have been established, and student affective and cognitive outcomes as they relate to those behaviors are being measured.

The question posed is: Do the 26 teaching behaviors we have identified as being critical to effective teaching have an impact on student outcomes in both the cognitive and affective domains?

Design

This project concentrated on isolating and verifying established criteria for the various policies on teacher, school and subject evaluations which were already in place. Ultimately, the project involved developing and validating a set of indicators which could be used to assess teacher effectiveness in a formative process.

Voluntary support through acceptance and involvement was received from staff. More than 80% of all staff responded to a survey that asked them to indicate the criteria each felt were critical to improving teacher effectiveness. Eight experienced and respected teachers expressed a keen interest in serving on the local committee whose purpose was to finalize the indicators and establish the process and terms of reference for the project within the established guidelines.

This committee reviewed pertinent research and literature, developed a set of 26 criteria of effective teaching, and formulated key variables which could impact the effectiveness of implementation in all division schools on a voluntary basis. The committee reviewed the input from staff and finalized the working project documents. Table 1 presents the 26 indicators.

During the first year, on a voluntary basis and in a formative process, all staff had the opportunity to meet and discuss the previously developed indicators of effective teaching or visit each other's classrooms to observe one or more of these specific, established areas. Data were collected on staff participation, specific objectives related to each type of indicator, local or out-of-school contacts, and years of teaching experience. Information was also gathered on geographic distance, use of extra time provided in staffing, staff attitudes, and extended professional development activities. Two survey instruments were developed and validated using Good's (1963) validation criteria and parents and students were subsequently surveyed to gain their perspectives of indicators of quality teaching. Surveys were distributed to all students in grades 9, 10, 11 and 12 and parents of students in grades 2, 5, 8 and 11. The intent of these representative surveys was to gain parent and student input into the process and criteria, while obtaining their perception on validity and/or development of new criteria. A teacher survey on satisfaction and professional development involvement was also conducted. The data gathered at the conclusion of the first year of the project were collated and presented on a system level, thereby assuring the anonymity of participants.

In the second year of the project, a decision was made to enhance the credibility of the project as a research endeavor through the establishment of a teacher performance baseline to which comparisons could be made at a later point in time. Teaching behaviors with the lowest ratings were addressed at the system level through a variety of professional development activities.

Table 1

Indicators of Quality Instruction

1. Sequentially Developed Planning and Preparation

1.1 The teacher maintains/develops short, unit and long term, flexible plans with an evaluation process.
1.2 The teacher adheres to Curriculum/Program of Studies documents.
1.3 The teacher provides a safe and organized environment with resources and equipment readily available.
1.4 The teacher provides for individual learning needs with consideration of student abilities, based on diagnostic information.
1.5 The teacher provides a variety of learning activities.
1.6 The teacher ensures that objectives are stated.
1.7 The teacher provides for motivation of students.
1.8 The teacher makes learning activities relevant.
1.9 The teacher plans for interdisciplinary activities.

2. Key Instructional Strategies

2.1 The teacher circulates during pupil activities.
2.2 The teacher presents clear assignments which are relevant to student experiences.
2.3 The teacher exhibits classroom management skills.
2.4 The teacher provides an environment whereby active learning takes place within a working and non-threatening atmosphere.
2.5 The teacher provides a physical classroom environment which is stimulating, enriched, relevant and has displays of student work.
2.6 The teacher exhibits a variety of questioning techniques.

3. Communication Skills

3.1 The teacher provides clear explanation of objectives, assignments and behavioral expectations.
3.2 The teacher exhibits a variety of positive reinforcement techniques.
3.3 The teacher is an active listener.
3.4 The teacher provides timely and relevant reviews.
3.5 The teacher uses language appropriate to the developmental level of students.
3.6 The teacher maintains regular parental information flow.

4. Pupil/Teacher Relationships

4.1 Mutual respect is exhibited between teacher and students.
4.2 Clear routines, expectations and rules are made known and followed.
4.3 The teacher provides for positive peer interaction and support.
4.4 The teacher uses a fair and meaningful evaluation process.
4.5 The teacher provides prompt feedback on student assignments.

A need was also recognized for additional student outcome measures relevant to the intent of the indicator system. The *Educational Quality Indicators: Inventory of Assessment Instruments* (Alberta Education, 1990) was consulted. Sample copies of a number of assessment instruments were reviewed and the *Classroom Environment Scale* (Moos & Trickett, 1987) was selected for grades 5, 8, and 11 and the *Student's Perception of Ability Scale* (Boersma & Chapman, 1977) was selected for grade 2 to measure student outcomes in the affective domain. The former served to supplement data gained on cognitive outcomes measured by provincial achievement tests and diploma exams. The data collected in the third year were identical to those of the second year of the project. Table 2 summarizes the data collected during the second and third years.

Findings

Student outcomes must be monitored over an extended period of time. Only then can comparisons be made, trends or themes identified and results substantiated. As a result, only conclusions relating to strategies that have been successful in promoting the active involvement of professional staff in this change process are being shared, along with a very brief reference to parental perception.

Staff

The active, voluntary involvement of professional staff in action research was the most positive aspect of our EQI project. The value teachers attached to this project in terms of the professional growth opportunities it provided was clearly illustrated. Approximately 90 percent of all teachers responding to the survey felt their involvement contributed to their professional growth.

Direct staff input into the development and validation of a set of indicators that can be used to assess teacher effectiveness in both formative and summative processes provided a sense of ownership and subsequently enhanced the likelihood of continued participation. The number of classroom visitations made each year is indicative of teachers' willingness to be active participants in this process.

Research provides considerable evidence to support the position that teachers should play a significant role in setting the criteria by which their performance is to be judged. Teachers in this jurisdiction did set the criteria to be used in the formative evaluation process, and subsequently supported adoption of these same criteria for the summative process. Ownership is having a positive impact upon teachers' willingness to accept these as legitimate criteria.

Teachers have shown a willingness to modify teaching behaviors. Table 3 illustrates a change in the modal rating on a considerable number of criteria. Similarly, the mean rating has increased significantly on a number of criteria. Clear description of the meaning of each criterion resulting from discussions with colleagues and administrators may have contributed to this positive change.

Table 2

Data Collection 1990 to 1992

Type	Indicator	Measure	Source
Staff	participation	number of visitations made to other teachers' classrooms	teachers
	professional development	number of teachers attending out-of-division PD activities	teachers
	teacher effectiveness	aggregate rating on each of the 26 teaching behaviors	evaluator
Parent	perceptions	survey of parents of students in grades 2, 5, 8, 11	parents
Student	perceptions	survey of students in grades 9, 10, 11, 12	students
	attitudes	*Student's Perception of Ability Scale* (grade 2) *Classroom Environment Scale* (grades 5, 8, 11)	students
	achievement	grades 3, 6 and 9 achievement tests grade 12 diploma examinations	students
	discipline	suspensions, expulsions, referrals to office, dropouts	administrators

Teachers actively participated in the review and major revision of our student and school evaluation policies and processes to bring them "on line" with the indicators we have adopted. Two documents, a school improvement handbook and a student evaluation handbook were the products of this project, both germane to promoting effective teaching. Under divisional sponsorship, a local committee of teachers produced a new teacher plan book which we believe will have a positive impact on planning and reporting procedures.

The teacher questionnaire indicated strong support for the professional growth opportunities this project has provided. Typical written responses follow.

> "A good project that promotes and facilitates teacher development."
>
> "I think this EQI project is very valuable to all teachers. It gives a good opportunity to observe others in action as well as to receive input to help enhance our classroom environments."

Parents

With few exceptions the parental survey results indicated a high level of support for the criteria currently being used to judge teacher performance. A safe and productive environment, attention to individual learning needs, clarity of objectives, the teacher being an active listener, and the entire area of pupil-teacher relationships are the highest priorities of parents. These factors have the highest impact on student attitudes toward school and subsequently on academic performance.

Students

In all three years there was generally reasonable consistency in the responses of parents and students. Student opinion on any of the criteria was not as strong as that of parents. Without exception a significant proportion of students indicated "less important" as their rating of any particular criterion. Overall, however, the only significant disagreement between parents and students was regarding the flow of information to the home and the importance of the teacher circulating in the classroom. Students attached much less importance to these than did parents.

Conclusions

At this point in time it is premature to speculate on the impact modification of instructional strategies is having upon student outcomes. As a result, only conclusions relating to strategies that have been successful in promoting the active involvement of professional staff in this process can be shared. Other jurisdictions may see potential value for incorporating components of these strategies into plans of action they may be pursuing.

Table 3

Teacher Performance in 1991 and 1992

Criteria	1991 (N=82) Mean	1991 (N=82) Mode	1992 (N=74) Mean	1992 (N=74) Mode
Sequentially Developed Planning and Preparation				
1.1 plans	4.3	4	4.3	5
1.2 curriculum	4.3	4	4.8	5
1.3 environment	4.3	4	4.5	5
1.4 individual needs	4.2	4	4.1	5
1.5 variety	4.0	4	4.2	5
1.6 objectives	4.0	4	4.0	5
1.7 motivation	4.0	4	4.2	4
1.8 relevance	4.1	4	4.3	5
1.9 interdisciplinary	3.9	4	3.9	4
Key Instructional Strategies				
2.1 circulation	3.8	5	4.4	5
2.2 clarity	4.1	4	4.4	4
2.3 management	4.2	5	4.3	5
2.4 atmosphere	4.3	5	4.4	5
2.5 environment	3.9	4	4.0	5
2.6 questioning	3.9	4	4.0	4
Communication Skills				
3.1 explanation	4.1	4	4.1	5
3.2 reinforcement	3.6	4	4.1	4
3.3 listening	4.2	4	4.3	5
3.4 review	3.9	4	4.3	5
3.5 language	4.2	4	4.6	5
3.6 parents	4.0	5	4.0	4
Pupil/Teacher Relationships				
4.1 respect	4.4	5	4.3	5
4.2 expectations	4.2	5	4.2	5
4.3 interaction	4.2	4	4.3	5
4.4 evaluation	4.0	5	4.3	4
4.5 feedback	4.1	4	4.4	5

Rating scale: 1 - very poorly addressed; 2 - poor; 3 - fair; 4 - good; 5 - excellent.

With the support and involvement of staff, we believe the project is proving to have a very positive and professionally rewarding impact on teachers for the benefit of students. It is the impact on student outcomes that will continue to be the focus of this study.

Implications and Recommendations

Based on the findings of this study, the following implications were derived. Reference is made exclusively to teachers as they were the "key players" in this process.

Staff support is crucial to the success of any intervention strategy. Without the voluntary support of teachers, a study of this nature and magnitude would not have been possible. Mandates were not a part of this process. Staffs must be given the opportunity for voluntary involvement in the very early stages of any project or study similar to this. This enhances the likelihood of acceptance and participation over an extended period of time.

Teachers must have the opportunity and the channels for "feeding" into the system. This generates an allegiance to the system of which they are a part. Under the leadership of central office administration all decisions relating to this project were made by a local committee of teachers. This included the identification of indicators of effective teaching, formulation of key variables which could impact the effectiveness of implementation, identification of 26 teaching behaviors perceived critical to positive student outcomes, articulation of clear explanations of objectives, development and selection of data gathering instruments, and the development of an action plan for implementation in all division schools.

Direction and support from the administration and the school board is critical to the potential for significant changes being made. The school board's commitment to this project, evident in the funding it provided to cover the cost of substitute teachers, the addition of a staffing component to all small schools, and the priority given the project in the division's Three Year Plan were perceived as support for the project and its intent. This has provided the time teachers needed for planning and implementation.

Tangible benefits or results enhance the likelihood of continued commitment and participation. Rewards, whether intrinsic or extrinsic, serve as motivational tools.

Project Follow-up

The Board of Trustees of the Spirit River School Division, with the support of senior administration, has made a commitment to carry on with the study. Funding has been budgeted to cover costs of substitute teachers and the additional staffing component in our small schools for the forthcoming school year.

The extensive data collection currently in place will be continued. We are now completing only our first measurements of the effectiveness of modifying instructional strategies. In order that we may appropriately assess the results and

establish relationships, should the results support this, additional years of research and documentation are required. To stop the process at this point would have a negative impact on the accomplishments of the last three years.

It is also our intent to continue to inform our publics of the efforts being directed at making our schools a better place for students. The local media and our school newsletters will continue to serve as the primary disseminators of information to the public. Discussions, productions and presentation at special events such as Education Week will continue to augment this process. Our ability to demonstrate to our publics that education is an excellent investment in our children and our future will continue to be a high priority.

Concluding Statement

Teachers do make a difference! This EQI project has been a positive experience for many stakeholders in the Spirit River School Division. We believe that the project is already having a very strong and professionally rewarding impact on teachers for the benefit of our students.

Using the same criteria for both summative and formative evaluations has heightened teacher awareness regarding professional expectations. The teacher's planbook has been well accepted in its probationary year. It will be revised, enhanced and updated to best meet the needs of staff in our division.

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High Success in Mathematics

Through Outcome-Based Education

Fort McMurray RCSSD No. 32

The purpose of the Outcome-Based Education (OBE) Project was to determine whether OBE makes a positive difference in student achievement, responsibility, and attitudes in mathematics. This report tells the story of the OBE project. Teachers, students and parents are the real heroes of this story. The results are a testimony to their beliefs, efforts and dedication. The findings, based on a variety of indicators, show the results of the OBE process. It is evident that the OBE process has made a positive difference in the outcomes of student achievement, responsibility and attitudes.

Introduction

Outcome-Based Education is a comprehensive restructuring process. It is not a program. Several traditional educational practices are targeted for restructuring through the OBE process. The practices deal with what we want all students to demonstrate, how well we want and expect them to demonstrate it, and when and how we give them credit for having demonstrated success.

The restructuring efforts in the project were organized around the four principles of OBE: a) designing down from where we want to end up, b) a clear focus on outcomes of significance, c) high expectations and standards for the success of all students and d) time to learn with appropriate opportunities for learning.

Rationale

The Fort McMurray Catholic Schools welcomed an invitation from Alberta Education to collaboratively determine how well our students were achieving essential learning outcomes.

We were interested in collecting data that would allow us to assess the effects of an OBE restructuring process. The principles of OBE were well supported in the educational research. The OBE team wished to align its practices with the principles to increase student success. Our hypothesis was: If the OBE principles are separately supported in the research as effective practices, they should produce significant results in student achievement when introduced simultaneously.

The OBE team understood that the restructuring process necessitated a comprehensive transformation of some educational practices, beginning with our vision of student success. Our focus on improvement and data collection was in one subject area since we had been cautioned to "start small". The reason for our initial focus on mathematics was brought about by the superintendent's understanding of results and his vision for improved student demonstrations of student achievement in mathematics.

Purposes

Our project purposes were to implement OBE in two schools and to review the effects of our efforts on student achievement, responsibility and attitudes in mathematics.

Design

Data Sources

To collect the data annually, the OBE team decided to use a variety of measures and data sources to provide a comprehensive picture of student success in the desired outcomes. The various measures and data sources used in the project are identified in Table 1.

Provincial Achievement Tests – Provincial mathematics achievement tests were written by students in the official writing years with repeated use of the measure in the following years. The tests were duplicated with permission from Alberta Education. Teachers received the tests on the morning of administration, supervised the students' writing of the test, and forwarded the tests to be scored by a district team. The purpose in using these provincial tests was to determine, through reliable and valid measures, whether the OBE process showed achievement gains over time. Although comparisons were made with provincial cohorts, the major comparisons we wanted to see were the comparisons within a school over time.

Teacher-Developed Tests – These tests were used in grades 2 to 10. They provided the data used in reporting learning progress to students and parents. Other sources of information for progress reporting included samples of student work in portfolios and curriculum aligned checklists.

Local Surveys – Local stakeholder surveys were developed and included questions related to each of the identified outcomes. Survey statements were rated on a 5-point scale:

Not at all	A little	Moderately	Quite a lot	Very much
(1)	(2)	(3)	(4)	(5)

Statements to which parents responded included:

- I am aware of the High Success process in my child's class.
- My child has shown an increase this year in achievement, responsibility and positive attitudes

Table 1

Educational Quality Indicators/Outcome-Based Education Data Collection

Student Outcome	Measures	Sources	Grades
achievement	Alberta Education mathematics achievement tests	students	3, 6, 9
	teacher-developed tests	students	3 to 10
	local surveys	students	3 to 10
		teachers	2 to 10
		parents	2 to 10
		administrators	2 to 10
responsibility	local surveys	students	3 to 10
		teachers	2 to 10
		parents	2 to 10
		administrators	2 to 10
	random interviews	students	3 to 10
		parents	3 to 10
		teachers	2 to 10
		support staff	2 to 10
		administrators	2 to 10
attitudes	*School Subjects Attitude Scales*	students	5 to 10
	local surveys	students	3 to 10
		parents	2 to 10
		teachers	2 to 10
		administrators	2 to 10
	random interviews	students	3 to 10
		parents	3 to 10
		teachers	2 to 10
		support staff	2 to 10
		administrators	2 to 10

Statements to which students responded included:

- I like this process of learning.
- This method has helped me to get higher math scores.

Stakeholders were invited to provide additional comments. Some responses were quite elaborate and provided some valuable "thick description".

Interviews – Random interviews were held periodically with various stakeholders and followed a format similar to the survey. Many of these interviews were held in the first year. Early feedback allowed us to make appropriate and immediate changes in the process.

School Subjects Attitude Scales – This instrument (Nyberg & Clarke, 1983) provided external quantitative data in the affective area. The purpose was to assess students' attitudes toward mathematics over the three years. Students provided responses related to perceived difficulty, usefulness, and evaluation of mathematics. The data were collected annually from students in grades 5 to 10.

The OBE Sample

The sample included the following stakeholder groups in one elementary-junior high and one high school:

Students	The OBE pilot group included approximately 600 grade 3 to 10 students in 1990-91 and approximately 700 grade 2 to 10 students in 1991-92.
Teachers	12-15 teachers implemented the pilot project in approximately 25 classes per year, depending on semester scheduling and teacher placements.
Parents	Approximately 360 parents attended out OBE awareness and input sessions. They provided survey and verbal responses regarding support or improvement for the process. All parents of students in the project were surveyed at the end of the 1991 school year, and again at the close of the 1992 school year. Given the number of students in the programs, approximately 1,300 surveys were distributed in the second and third years of the project.
Administrators	Two principals and two vice-principals were involved in the project over the three years.

Procedures

The three-year research project consisted of the following actions:

Year One – team meetings to research and implement the OBE process, development of the indicators framework, selection of measures, and development of local measures

Year Two – team meetings to discuss strategies and processes, implementation of the principles of OBE, field-testing, analysis of the data, and team presentation at a national OBE conference

Year Three – team meetings to determine how to refine and improve the process, field-test review, analysis of the data, and sharing the data

The OBE Process

The principles of Outcome-Based Education (Spady, 1988) guided our team discussions and decisions throughout the three-year project. The principles included:

Designing Down – Our purpose was to promote success for all students. In order to promote success, we needed to clearly define the broad-based, significant outcomes which students would need for their future. What did future trends tell us students would need to demonstrate success in the twenty-first century? Then we "designed down" to the program outcomes. The focus on responsibility, positive attitudes and competent demonstrations of significant mathematics outcomes provided a meaningful method of organizing for instruction.

Maintaining a Focus on the Significant Outcomes – We needed to maintain a clear focus on the outcomes of significance. As we became wrapped up in some of the details of curriculum we needed to continuously consider what we were asking students to demonstrate. Our collaborative work kept us on task and brought us back to the "drawing board" many times.

High Expectations – OBE teachers believed that their expectations for all students to perform at high levels had a major impact on student demonstrations of the outcomes. Student work needed to be done and done well to qualify for credit. In math, students were expected to demonstrate mastery by performing 80% or higher for each program outcome in order to receive credit for the skill. In some cases, a skill was seen as a "can do" skill, which did not receive a mark at all. Rather, a checklist was used and this implied, if needed, a 100% mastery level. Our reporting style changed in the pilot process since averaging or summarizing a lot of learning did not adequately describe what a student could do. Reports included a listing of all the mathematics concepts the student had mastered. It also included a listing of the concepts which a student had not demonstrated yet, or were "in progress".

Expanded Opportunities – Teachers were astutely aware that students learn in different ways and at different rates. However, they were cognizant that the opportunities provided for students to demonstrate their learning were frequently cut short by time or by the methods used in the initial instruction.

Teachers began to provide more than one chance for students to learn a concept or skill. Ideally, students had the opportunity to participate in a variety of active learning experiences during the introduction of a concept. A reteaching process, when needed, provided another opportunity for learning. The reteaching might

include such practices as peer tutoring or cooperative learning, if these were not included in the initial learning opportunity. Additional opportunities to learn provided the support many students needed to demonstrate success.

The issue of providing appropriate time for students to demonstrate their learning was magnified by the calendar system. Some students needed time beyond a defined semester or school year to demonstrate the outcomes. Similarly, some students who mastered concepts quickly needed the opportunity to continue their progress.

Dealing with the issues of time and support for learning required a collaborative and creative vision.

Findings

Student Achievement

Teacher Tests – Our findings indicated that many more students were reaching mastery (80% or higher) levels in mathematics outcomes than previously on teacher-developed assessments. Figure 1 presents the results.

There were substantial increases in achievement at the higher levels in both Math 10 and Math 13 in 1991 and 1992. Teachers believed that a clear focus on what was to be demonstrated and high expectations for all students were making a difference in student performance. Teachers however were concerned about the students who were still reticent in accepting responsibility for learning. Teachers saw students counting on several chances to demonstrate success and procrastinating in demonstrating the outcomes. Time was an obvious factor for teachers and students in the semestered system. Reporting times were tedious for teachers, as students attempted to "catch up" on demonstration of the outcomes. In 1992, 19 students from the Math 10 and 13 classes withdrew to attend the school's personalized learning centre or Math 14 classes. Teachers felt these students exhibited behavior problems due to their lack of prerequisite skills or understanding of the concepts.

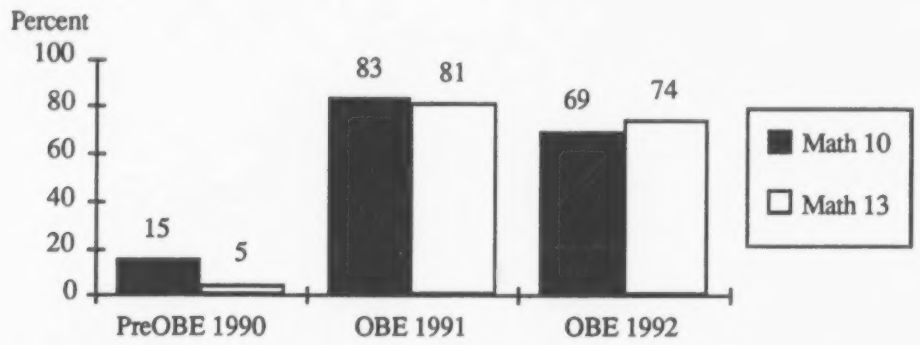

Figure 1: Percentage of Mathematics 10 and 13 Students Achieving Mastery (80% or Higher) on Teacher Tests

The failure rates for Math 10 were 26%, 17% and 31% respectively from 1990 to 1992. In Math 13 the failure rates went from 37% to 18% to 26%, 1990 to 1992. Teachers indicated that students did not drop out of school but rather made decisions to get the prerequisite skills through another course before registering for Math 10 for a second time. The personalized learning centre was an attempt to provide another learning opportunity for these students prior to their enrolling in Math 10. This action corresponded to Radwanski's (1987) suggestion that a proactive process through extensive special help would assist these students' learning and prevent their dropping out of school.

A review of the first semester 1992-93 grade 10 math results indicated that 80% of the total grade 10 students who had participated in two years of OBE instruction (grades 8 and 9) were performing at mastery levels of 80% or higher in all math courses in the first term. Thirty-nine percent of the OBE students who registered for math courses in the first semester enrolled in Math 10. Of these, 96% were performing at mastery levels. Forty-six percent of the students took Math 13; 85% of these students were performing at mastery levels. Fourteen percent of the OBE students enrolled in nonOBE math courses (Math 14 and Math 16). Of these, 25% were performing at the mastery levels in the first term report.

Provincial Achievement Tests – Acceptable Standard – OBE students demonstrated high achievement on external measures, such as the provincial mathematics achievement tests for grades 3, 6 and 9; 85% of students are expected to achieve the acceptable standard or higher on the test. In all cases, OBE results showed increased achievement over time.

Grade 3

In 1990, 98% of the OBE grade 3 students achieved the acceptable standard on the provincial achievement test. This performance was repeated in 1991. In 1992 all grade 3 students were performing at the acceptable standard. Figure 2 displays the results. It may be argued that the teachers were teaching to the test. Teachers valued the conditions of the provincial testing process and the school and district attempted to maintain these conditions at all times. Teachers were dedicated to

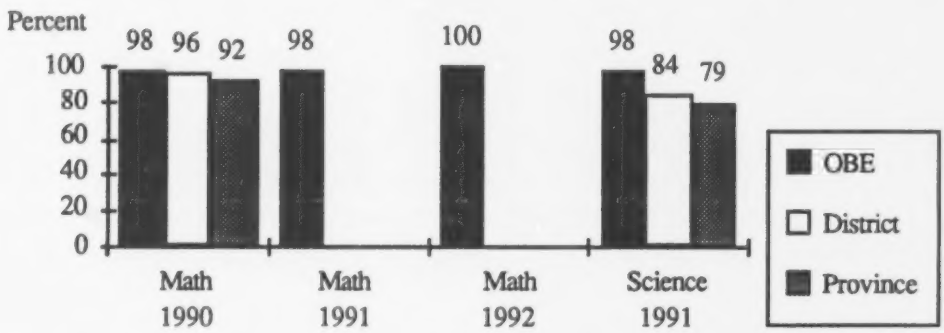

Figure 2: Percentage of Grade 3 Students Achieving the Acceptable Standard on the Total Provincial Math and Science Tests

teaching the curriculum outcomes. They believed it was the dedication to the teaching of the outcomes, and the provision for time and opportunity to learn, that caused these results to occur. In fact, in 1991 grade 3 students wrote the provincial science test and teachers indicated that they spent time preparing for that test. They were keen to see the results because they felt there was a great deal of overlap between science and mathematics in 1991, for example, graphing and practical applications. They believed strongly that OBE transfers into other subject areas.

The grade 3 teachers shared the following comments when asked for their perceptions regarding the results:

> "We were directed to think critically about what the children needed to do easily and what we could do without. We took things that would be beneficial for student learning and did that EARLY so the students would have the skills. Problem solving was taught early because it was a skill they had to have. We made them discuss and verbalize what should be done, e.g., process. They [students] made up their own problems for other kids to do! Subsequent new skills in regrouping were taught in the problem solving format. We had students drawing, using manipulatives, talking and sharing ideas with a partner. Students worked in groups of 4. We tried to see who could come up with a way to solve the problem. We stressed the PROCESS, not the answer, thereby reinforcing the students' thought process."

The grade 3 teachers expressed surprise at the survey results they had collected in their own classrooms. Students positively ranked mathematics with physical education and art. They also expressed surprise at the students' reaction to the writing of the achievement exam. "They love the achievement test!"

The 1992 results were similar. All students performed at or above the acceptable standard.

Grades 6 and 9

In 1991, the grade 6 students performed slightly above their local peers on the mathematics achievement test. There was a significant variation in collaborative efforts and implementation between classes at this level compared to the grade 3 level. Basically, collegial planning did not occur other than involvement in the district team planning sessions. The results for the two classes are combined. The 1992 grade 6 OBE results showed higher performances than the local and provincial results of 1991. Figure 3 presents the results.

Teacher descriptions of the OBE process at the grade 6 level included:

> "My implementation of OBE changed the achievement results and attitudes, e.g., self-confidence, of these students!"
>
> "The principles transfer into all the different subjects."

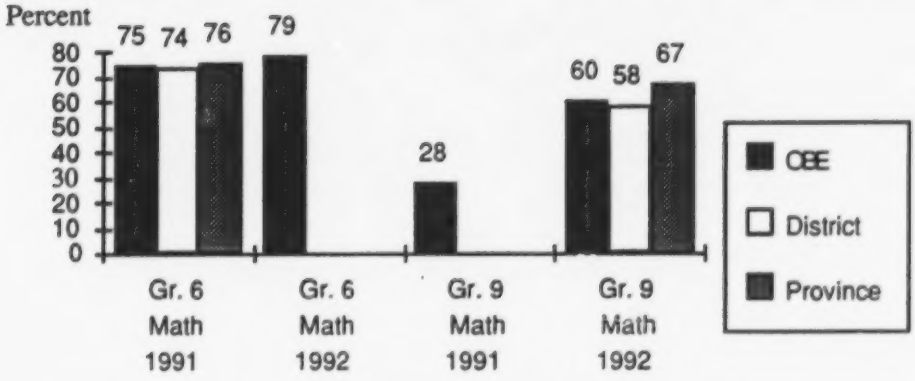

Figure 3: Percentage of Grade 6 and 9 Students Achieving the Acceptable Standard on the Total Provincial Mathematics Tests

Some of the changes in practice included the following:

- In 1989-90 students received few expanded opportunities. In OBE practices, students received more opportunities.

- Previously, everything counted, for example, "stuff" students didn't know was averaged in with the "stuff" they knew and was held against them at every reporting period. In OBE practices, record keeping became very focused on outcomes. Students got credit when they mastered an outcome. One teacher stated, "I didn't grade as much this year as last – only once the students were successful." Previously, some random record keeping occurred. "The next space in the book was the next activity we did!" The record keeping system became a diagnostic tool and identified student needs and successes.

In 1991, 60 grade 9 OBE students wrote the 1988 Alberta Education Pilot Math Test. Only 28% of the students performed at the acceptable provincial standard. Preceding and following the test, the students indicated their perceptions that this test was not "worth" any credit, so they did not attempt to achieve their best. In 1992, during a discussion following the writing of the provincial test, students indicated that they had tried their best. Some students felt the questions had been "tricky". Their 1992 performance was lower than the provincial average but slightly higher than the local results. The 1992 grade 9 OBE performance showed a dramatic increase over the 1991 results.

Teacher practices included a great deal of assistance to students after class hours and the choice for students to move ahead beyond the regularly defined time constraints. In the 1991-92 school year, four students completed the course outcomes prior to the end of the year and moved to the next grade level outcomes midyear. Other variations in inputs included additional preparation times for OBE planning in mathematics. A teacher aide was available for math classes. Parent meetings provided awareness for parents and support for the process.

Provincial Achievement Tests – Standard of Excellence – The percentage of students achieving the standard of excellence is displayed in the following figures; 15% of students are expected to achieve the standard of excellence on the test. In all cases where repeated tests were administered, results over time showed improvement gains in the OBE classes, as compared to earlier results.

In 1992, a greater percentage of the grade 3 OBE students reached the standard of excellence in mathematics than in 1990. This was lower than the 1991 results but a significant increase from 1990. The OBE results in science were consistent with the mathematics results, although the percentage of students performing at the standard of excellence was lower. OBE students outperformed their local and provincial peers in science. The differences between grade 3 OBE and provincial results were significant. Figure 4 presents the results.

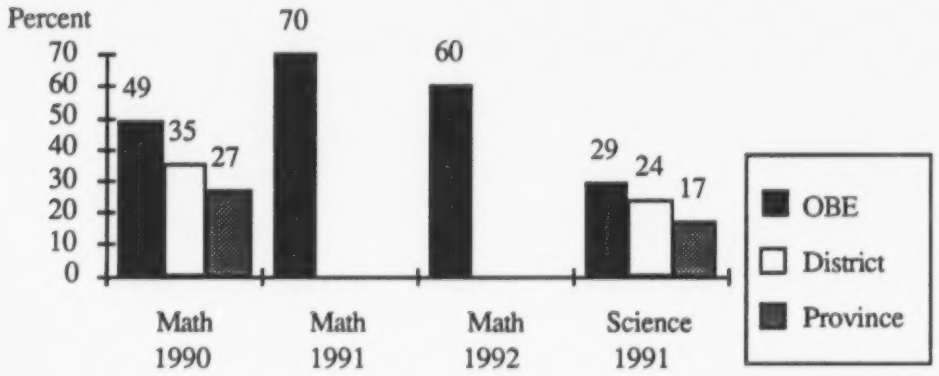

Figure 4: Percentage of Grade 3 Students Achieving the Standard of Excellence on Total Provincial Mathematics and Science Achievement Tests

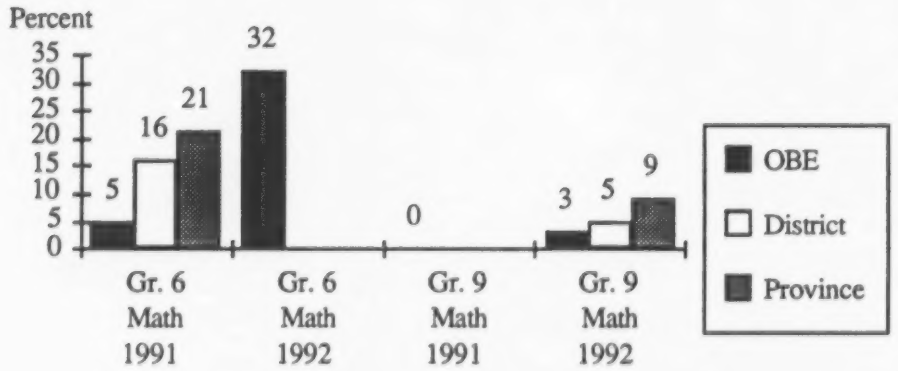

Figure 5: Percentage of Grade 6 and 9 Students Achieving the Standard of Excellence on the Total Provincial Mathematics Achievement Tests

The 1992 grade 6 results showed a dramatic increase in mathematics achievement over the results of 1991. The 1992 grade 9 OBE students did not match the provincial or local performances in the standard of excellence but they increased their own school performance slightly over the 1991 results. Figure 5 presents the results for grade 6 and 9 students.

Stakeholder Perceptions Regarding Outcomes

Parent and student surveys showed perceived gains in student achievement, responsibility and attitudes as a result of the OBE process. Although the results were positive, the number of parents responding was low (N=98, 15% response rate in 1991; N=150, 19% response rate in 1992,). Teacher responses indicated a perceived decrease in positive changes although interviews with teachers indicated that expectations for the demonstrations of the outcomes were higher in 1992. Figures 6 through 8 present the results.

Teacher perceptions suggest that we may have experienced the Hawthorne effect. In 1991, all teachers indicated a substantial change in student achievement, responsibility and attitudes. Interviews with teachers in 1992 indicated their continued high expectations for student achievement. However, teachers believed achievement could be higher, students attitudes could be more positive and students could show greater responsibility for their own learning. In each area, achievement, responsibility and attitudes, teacher perceptions moved from 100% in 1991 to 80% in 1992.

The most significant increase in stakeholder perceptions appeared in the area of student responsibility as perceived by parents. One parent indicated in 1991 that her child was even choosing to clean up her room now. The mother attributed this phenomenon to OBE, believing it had made her child feel better about herself, thereby increasing her desire to demonstrate responsibility at home. Student responses related to perceived increases in responsibility were also higher in 1991. Teachers felt students could demonstrate greater responsibility for learning.

Parent responses regarding perceived increases in positive student attitudes were higher in 1992 than in 1991. A slight increase in student perceptions was noted. Teachers felt students could be more positive.

Whether students feel better about themselves as a result of achievement or whether they need to feel good about themselves in order to achieve well has long been debated. The results appear to suggest a relationship between achievement and gains in the affective and behavioral domains.

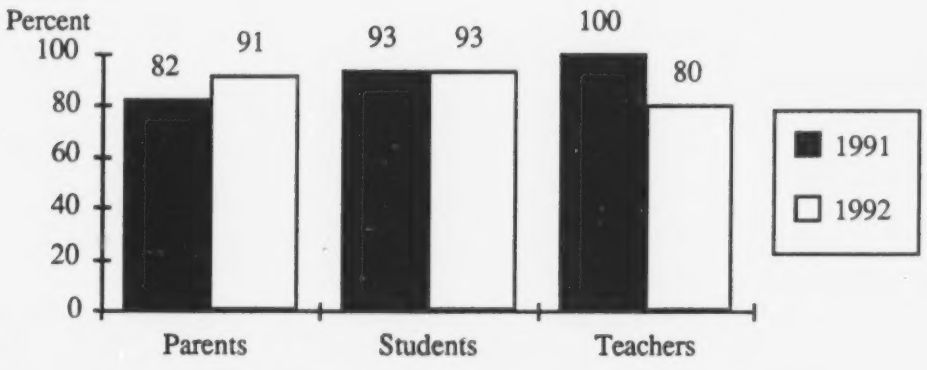

Figure 6: Percentage of Stakeholders Indicating Positive Changes in Student Achievement in Mathematics

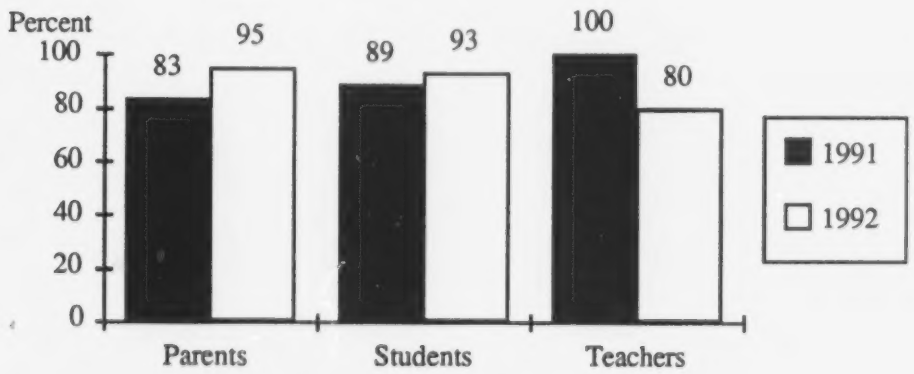

Figure 7: Percentage of Stakeholders Indicating Positive Changes in Student Responsibility

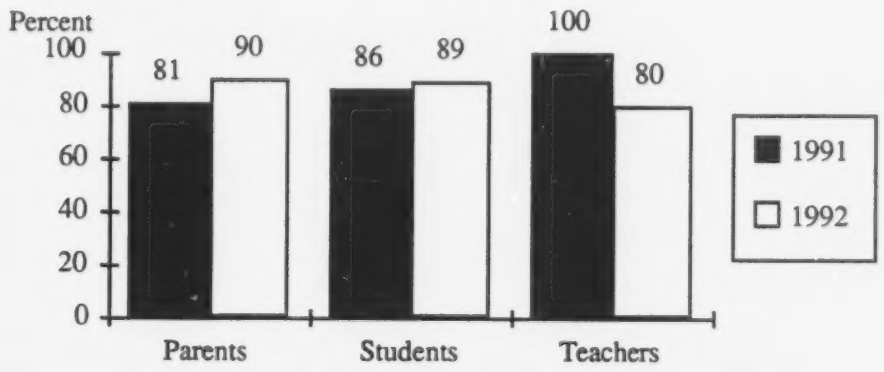

Figure 8: Percentage of Stakeholders Indicating Positive Changes in Student Attitudes

The *School Subjects Attitude Scales* (Nyberg & Clarke, 1983) were administered annually over the three years. Table 2 presents the results. A review of the results led to a suggestion that since the means did not vary significantly, only minimally if at all, interpretations should be made with caution. Given these cautions, we make the following observations. There appeared to be some positive gains in the grades 5 and 6 OBE classes while district results have stayed virtually the same over the three years. Grade 7 to 9 OBE students appeared to think math is less useful than previously. OBE Math 10 results suggest that students think math is less useful than previously. OBE Math 13 results suggest that some students believe math is more useful and they appear to like it slightly more than previously. Grade 7 to 10 students appear to think math is not an easy subject.

Table 2

Mean Scores for Attitudes Toward Mathematics on the *School Subjects Attitude Scales*

Mathematics Attitudes	School District 1990	1991	1992	PreOBE 1990	OBE 1991	OBE 1992
Grades 5-6	(N=366)	(N=383)	(N=432)	(N=84)	(N=97)	(N=102)
Evaluation	27.5	26.6	27.6	21.3	27.6	28.5
Usefulness	33.9	33.8	33.8	32.3	33.6	35.0
Difficulty	26.3	25.3	26.3	24.6	26.8	27.1
Grades 7-9	(N=434)	(N=522)	(N=461)	(N=183)	(N=243)	(N=229)
Evaluation	23.9	22.7	29.5	24.4	24.1	24.6
Usefulness	32.9	32.3	34.1	34.4	33.1	31.8
Difficulty	22.0	23.1	22.9	21.4	21.4	21.9
Math 10				(N=102)	(N=65)	(N=80)
Evaluation				23.9	20.2	21.4
Usefulness				34.5	31.5	26.9
Difficulty				19.7	20.5	18.1
Math 13				(N=37)	(N=44)	(N=27)
Evaluation				21.7	25.0	23.1
Usefulness				28.6	33.3	28.9
Difficulty				23.6	23.0	21.8

Note. A mean score of 24 represents a neutral score whereas a mean above 24 represents a positive feeling toward a subject and one below 24 a negative attitude.

Parental Support for the OBE Process

Parental support for the Outcome-Based Education process increased at the grade 2 to 9 levels in the second year of implementation. There was a decrease of support at the grade 10 level. Figure 9 presents the results. Generally, parental support for the OBE process was very positive. A significant increase in support occurred at the junior high levels. A decrease was evident at the grade 10 level. At a meeting with parents of grade 10 students, parents indicated they were supportive of the philosophy and principles of OBE but they believed that our "time to learn" principle was not appropriately adhered to through the semester system. This constraint had also been noted by teachers. It was hoped that technological systems would support and improve time to learn practices. An integrated learning system is currently under district review.

Table 3 presents stakeholders' perceptions about the strengths and weaknesses of the OBE approach.

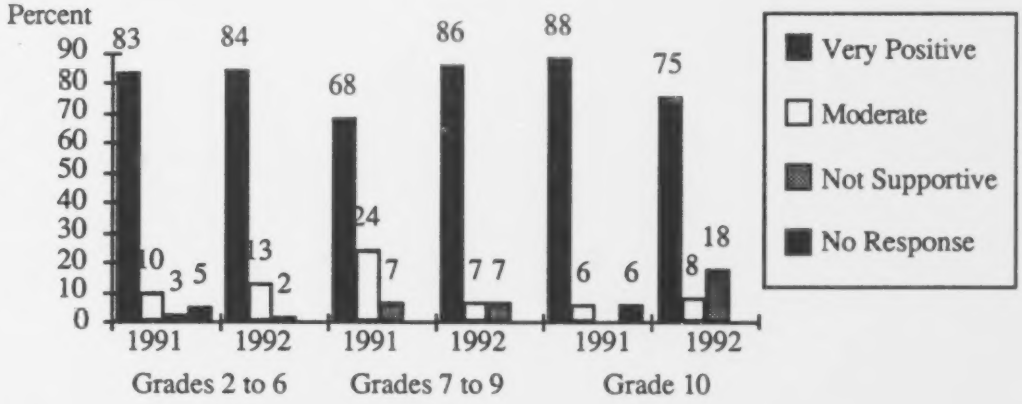

Figure 9: Percentage of Parents Indicating Support for the OBE Process

Conclusions

There is strong quantitative and qualitative evidence that the OBE process produces positive results in student achievement, responsibility and attitudes in mathematics.

The improved outcomes appear to have been brought about by teachers focusing on the principles of OBE. The principles include designing down from the significant outcomes, maintaining a clear focus on the outcomes, expanded time and opportunity for learning, and high expectations for the success of all students.

Our results indicate that:

- More students are achieving at higher levels of performance on teacher developed and external measures.
- There was an increase in the percentage of parents showing support for the process at elementary and junior high levels.

Table 3

Stakeholder Perceptions Regarding Outcome-Based Education

Stakeholder	Strengths	Weaknesses
Parents	• high standards for achievement • high expectations for students to work at it and perform well • process builds self-esteem and confidence • second chances are realistic • promotes a solid understanding for math • the clear reporting system • teacher support for student success	• students who move to nonOBE classes do not necessarily perform well in those classes even with having had time in the OBE process • second chances are not realistic • opportunity to "goof off" and not try hard the first time • semester system goes too fast
Students *Grades 3 to 6*	• OBE is less confusing and easier • second chances help to improve math skills • useful to get a job • it provides a challenge • it's fun	• it's a bother, sports activities may be missed • teachers expect too much • the process continues even when students are not finished
Grades 7 to 9	• more is learned and remembered • allows students to learn from mistakes • students feel they actually learn the concepts • helps students become more responsible • will provide opportunity to get a good job and be proud of self	• students can get behind • second chances are not realistic • too many outcomes in a year
Grade 10	• the process is easier and students are confident about passing • better learning occurs • increases understanding in math even after tests have been written • less tension when you write a test • OBE Math is no longer a difficult subject to grasp	• students feel rushed but like the second chances • it's demanding • 80% expectation is too high
Teachers	• instructional clarity • collaboration • focus on quality • diagnostic emphasis • student confidence • love of learning	• how to improve student responsibility and higher level thinking skills • the need to show students how math is used in the day-to-day world • how to deal with the OBE principles within a semestered system

Source: Stakeholder Surveys, Fort McMurray Catholic Schools

- There were overall gains in parent and student perceptions regarding positive changes in student achievement, responsibility and attitudes.

The OBE improvement process evolved over time through collaborative visioning and efforts. The team heeded the caution that change occurs over time and that sufficient time must be allocated to encourage long-term gains in ownership and results.

Discussion

The findings imply that the OBE process provides a successful framework for the delivery of a variety of effective instructional practices. The results of the OBE practices show improved student achievement, responsibility and attitude outcomes.

Districts are invited to review the principles of OBE and determine what might be useful in their journey toward improved student outcomes. We hope that jurisdictions will take the best from the lessons we have learned and make adaptations appropriate to their local needs.

Stakeholders might ask, "If OBE promotes student success, why aren't more schools using it?" As a result of the requests for information we have received, it is clear that stakeholders all across Canada are keenly interested in the OBE process. There is a trend toward defining what it is we want students to demonstrate in the future and what we need to do now to promote student success.

Our experiences with OBE have created local ownership of *Vision for the Nineties* (Alberta Education, 1991). We encourage Alberta Education to continue the emphasis on educational improvement by focusing on outcomes.

Alberta Education has modeled the collaborative improvement process through the Educational Quality Indicators initiative. We believe the province's collaborative focus on outcomes is a positive one. Local indicators provide a picture of the general well-being of education in classrooms and schools. The use of a variety of indicators can provide a significant and varied source of information from which teachers and administrators can make informed decisions regarding educational improvement.

A limitation was the absence of reliable and valid mathematics achievement data which would have allowed us to make annual comparisons with students across Alberta. Our project would have benefited from such a provincial process. In particular, annual performance measures to assess higher level thinking skills would have been most helpful.

Follow-up

The EQI project has officially concluded but the teachers involved in the project see the need for a long-term improvement vision. They are committed to the continuation and improvement of the OBE process.

Suggestions for Improvement

Teachers and parents have made the following suggestions for improving the OBE approach.

Teachers:
- greater encouragement for students to move beyond regular calendar-defined "grade" levels
- continuation of the design down work
- resource availability in each classroom to promote learning beyond designated grade levels
- greater integration of higher level thinking opportunities through instruction and assessments
- technological support for continuous reporting
- continued collaborative efforts in planning

Parents:
- teacher training emphasis in motivation techniques for today's generation
- expand the program to grades 11 and 12, to other subjects and schools
- track the number of times students take to complete an outcome
- choices regarding participation in the process
- fun math and role playing, e.g., banker, farmer, stock market, etc.
- more time in class to complete outcomes
- change the standard to 90%; 70%
- eliminate deadlines for demonstrations of outcomes
- have fewer outcomes

Other OBE Support Strategies

In addition to a board resolution to continue the expansion of the OBE principles in the district, the focus on student success is a major component of the district's new Strategic Plan. This plan, which has had wide representation from key stakeholder groups, is expected to significantly impact education in the Fort McMurray Catholic Schools. The following outcomes were identified as significant demonstrations of success required by graduates of our district:

- mastery of Program of Studies outcomes
- Catholic Christian service and witness
- problem solving and decision making
- critical and creative thinking
- learning to learn
- positive attitudes/behaviors, responsibility, adaptability
- effective communication
- cooperation
- continuing to learn
- self-esteem

Emphasis will be placed on defining these outcomes of significance and developing instructional strategies and data collection procedures for each of the outcomes.

A collaborative review of current indicators and needs related to the outcomes is occurring through School Improvement Teams. These teams are comprised of

parents, administrators, teachers and students. Based on their assessment of current results and needs, the teams will collaboratively plan for improvement to enhance student success.

School Management Plans will be focused on the improvement of delivery and results in the district's outcomes of significance. The management plans are developed annually by administrators and teachers at each school.

Concluding Statement

Outcome-based education is a school improvement and restructuring process; it is not a program. Collaborative teacher efforts are critical to the effectiveness of our improvement process. Teaching teams may implement the process in slightly different ways but the questions all teams should ask are:

1. Are students learning what we believe is important to learn?

2. What evidence do we accept that students <u>are</u> demonstrating success in the outcomes of significance?

3. Based on our understanding of results, what can we do to improve the instructional conditions so students learn and progress continuously?

The premises and principles of OBE have provided the foundation for our collaborative improvement process over the last three years. The indicators strongly imply that the outcome-based process implemented within a collaborative environment has produced positive changes in student achievement, responsibility and attitudes.

The OBE process is a positive way to promote student success. We believe that many of our students will be better able to cope academically in high school because they have arrived from elementary school better prepared. We also believe the OBE process will better prepare our students for success after they leave our schools because they have demonstrated greater success in the outcomes of significance.

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Student Growth: The Development of Enhanced Practices for Assessment, Evaluation, and Communication

Edmonton School District No. 7

This report of work in progress provides details of Edmonton Public Schools' activities and findings in the developmental work carried out from 1989 to 1992 related to the Alberta Education "Educational Quality Indicators" initiative. It traces the dynamic shifts in developmental focus from simple identification of generic indicators and measures of student growth to coordinated development of mechanisms such as "portfolio assessment", the use of computer technology for communication and storage of information about student growth, and the establishment and validation of curriculum-based district level assessment strategies from grades 1 to 12. The report presents the assumptions and the developmental rationale on which the interpretation of the results is based. The district is continuing its initiatives in this domain. The planned direction of future developmental work is outlined.

Introduction

Edmonton Public Schools identified as a first requirement that a review be carried out of existing indicators and measures of district performance used in the ongoing performance monitoring processes. At that time, these included the results of:

- annual staff and student district attitude surveys
- biennial parent and general community attitude surveys
- district grade 3, 6 and 9 achievement tests in mathematics, language arts, science and social studies
- Alberta Education grade 3, 6, and 9 achievement tests
- Alberta Education grade 12 diploma examinations
- International Baccalaureate examinations

Although these indicators and measures provided useful information about the district's overall performance, there were obvious deficiencies in the range and nature of student achievement strategies and measures. The curriculum-based tests were unable to differentiate among grade levels of achievement except at the

3, 6, 9, and 12 levels. The usefulness of this type of externally evaluated "paper and pencil" testing at widely dispersed grade levels was considered inadequate. The tests were also unable to extract from these results any measures of student performance related to six essential learning outcomes established as communication, responsible citizenship, well-being, knowledge, inquiry, and aesthetic appreciation.

To achieve the result of the project that students, parents, staff, the board, and the general community have valid, accurate, and useful information about student achievement and growth, the following project requirements were established:

- instruments and strategies that will facilitate assessment and annual communication of student achievement for individual student, school and district reporting requirements are developed
- standards against which student achievement is evaluated relative to the graded curriculum are established
- assessment, evaluation, and communication of continuous development of skills, attitudes, and knowledge are emphasized
- strategies are designed to gather teacher judgments and evidence of student demonstration of the curriculum relative to the essential learning outcomes
- opportunity is provided for students to demonstrate their highest level of achievement

Rationale

> The assessments that count – the assessments that most strongly influence student learning and academic self-concept – are those developed and used by teachers in the classroom (Stiggins, 1988).

1. Legal requirements established in Section 13 of the School Act:
   - The student's teacher is responsible for assessing and periodically reporting student achievement.
2. Assumptions:
   - The achievement and performance of each student is measurable.
   - Student growth in achievement is one of the indicators for measuring student, school and district performance.
   - Teacher judgment about student achievement and performance is valid and reliable.

3. Principles:

   - Assessment, evaluation, and communication of student growth are based on the curriculum and are aligned with the school's philosophy and programming principles.
   - Information about methods of assessment and results of evaluation is available to students, parents and the community.
   - Student growth is assessed, evaluated, and communicated for all learning outcomes.
   - Evaluation and communication of student growth is ongoing and used to plan effective programming.
   - Student growth is demonstrated through a variety of performances evaluated by the teacher.
   - Student growth is enhanced when students participate in the assessment, evaluation, and communication processes.
   - Student growth is enhanced when assessment, evaluation, and communication are viewed positively by the student.
   - Methods of communicating student growth vary depending on audience and purpose.
   - Methods of assessment and evaluation of student growth vary depending on student learning patterns are developmentally appropriate.

Design

To achieve the planned results of the developmental project, the framework assumed the following major components:

1. design and validation of instruments and strategies to allow for student demonstration of achievement;
2. design and validation of strategies and criteria to allow for teacher judgment, data collection, and confirmation;
3. investigation of workable applications of the "portfolio assessment" concept;
4. development of prototype technology that would accommodate school and district needs for computer display, communication, and storage of information about student achievement and growth; and
5. overall management of the project to ensure coordination of the four developmental areas.

Measuring Growth

To enhance current district and provincial assessment practices and to overcome the deficiencies of the conventional paper and pencil "fill in the blank or circle the correct answer" type of assessment instrument, emphasis was placed on the concept of multiple activity tasks linked to the essential learning outcomes.

Requirements for the design of an initial task for field-testing were established:

- Tasks are seen to be valid and reliable by students, staff, parents, and the community and these publics are satisfied with the information they are supplied about student growth.
- The tasks are based on the essential learning outcomes.
- Teachers are involved in the development of criteria and the growth measure.
- Criteria are developed to evaluate the grade level of achievement.
- The tasks are undertaken by students currently demonstrating a wide range of performance and achievement.
- The tasks are as typical as possible of normal classroom and real-life experiences and involve the students in multiple activities.
- There is opportunity for student-to-student and teacher-to-student interactions.
- Classroom teachers are trained to use student products in making judgments about student achievement.

Portfolio Assessment

One of the ways of enhancing current practices for assessing, evaluating, and communicating student achievement and growth is through the use of portfolios. To guide the development work on this topic, Edmonton Public Schools has defined a "student portfolio" as a purposeful collection of student products that exhibits to the student and others the student's demonstration of achievement, growth and performance in essential learning outcomes. This collection includes criteria for selection, achievement criteria, student self-reflections, and teacher notes describing the context within which the products were obtained. The student is involved in the selection of the contents.

The relationship of the use of student portfolios to a generally enhanced school and district assessment system can be illustrated by the conceptual schema shown in Figure 1.

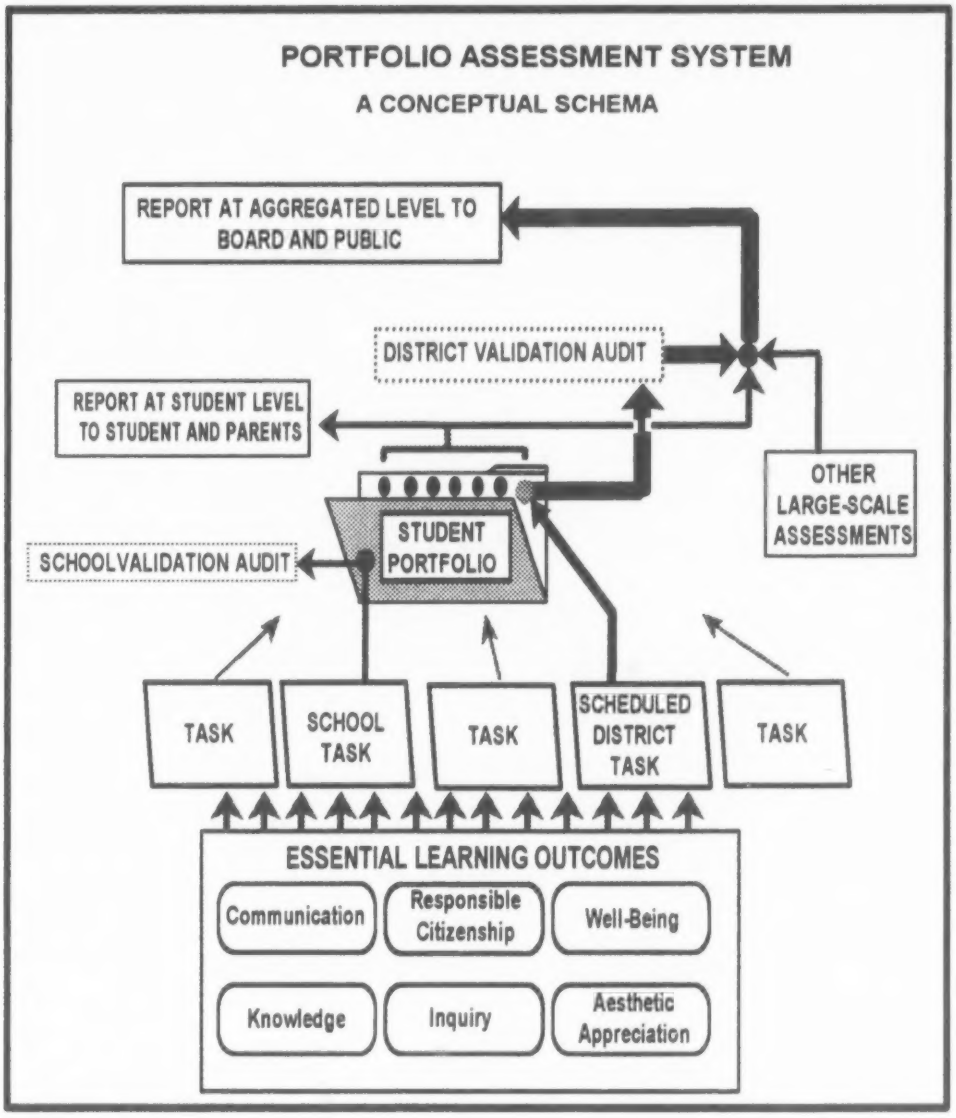


Figure 1: Portfolio Assessment System

The relationship of the portfolio technique to developmental assessment is aptly described by David Elkind:

> Developmental assessment involves documenting the work that a child has done over a period of time. Usually this is done by having a child keep a portfolio that includes all of his or her writing, drawing, math, explorations, and so on. In looking through such a portfolio, we can get a good idea of the quality of work that the child is capable of doing and of his or her progress over a given period (Elkind, 1989).

The initial developmental work on the student portfolio focused on the following issues:

- *Application* – the usefulness of the information
- *Responsibility* – the role of students, teachers, parents, community, administrators, and trustees
- *Content* – what is developed and how
- *Design* – task development, validation, and administration
- *Evaluation* – the criteria for making judgments
- *Management and Logistics* – storage, movement, access, School Act requirements for student records
- *Implementation* – staff development and training
- *Reporting* – communication of student growth information to the many publics

The development of workable strategies for teacher use of portfolio assessment in the day-to-day realities of the classroom environment was seen to take priority over any concerns about the physical format of a portfolio. Differentiation had to be made between the use of portfolio contents for district accountability and for individual student assessment.

There has been extensive teacher involvement in the ongoing development of appropriate teacher strategies and in the identification of a realistic set of student products that could be incorporated within the portfolio. The following have been identified for further investigation:

- narrative, personal, and informational writing
- student self-reflection analyses
- photographs, videocassettes, and audiotapes
- letters of reference
- tables and reports of investigative student work
- models
- artwork of all kinds
- student generated computer disks
- teacher judgments, assessment criteria, task descriptions, exemplars, and context notes

Prototype Computer Technology

In the initial project design, it was clear that there would be two major logistical restraints to obtaining maximum benefit from the proposed enhanced student assessment process:

- human limitations on the part of the teacher in coping with a wide array of media and achievement criteria; and
- communicating student growth information to parents and aggregated school and student information to the community.

The design, therefore, assumed the following objectives:

- to investigate the potential of current "pen-based" computer technology
- to develop prototype user screens for entry and presentation of student growth information
- to identify requirements for upgrading the wide area district network to accommodate the bandwidth required for central collection of student achievement data, including compressed image data transfer
- to develop teacher usable applications for local computer preparation of meaningful "progress reporting" to parents

Findings

> To solely use a standardized achievement test is like casting a net into the sea – a net that is intentionally designed to let the most interesting fish get away. Then, to describe the ones that are caught strictly in terms of their weight is to radically reduce what we know about them. To further conclude that all the contents of the sea consist of fish like those in the net compounds the error further. We need to know more about those we catch. We need new nets.
>
> (Randall, 1992)

It is important to emphasize that the new strategies designed, field-tested, and piloted in this developmental project are supplements to rather than replacements for, the traditional and current assessment practice. The results demonstrate the potential for *enhancement* of existing student assessment in our schools.

Table 1

Comparison of Assessment Methodologies

Old Nets	New Nets
assess student achievement after 3, 6, and 9 years of schooling	assess student achievement after each year of schooling
assess student achievement relative to grades 3, 6, and 9 curriculum	assess student achievement relative to all levels of the curriculum
assess student achievement relative to language arts, mathematics, science, and social studies	assess student achievement relative to the total curriculum
school and district information about student achievement at four points in the student's career	school and district information about student growth in achievement on an annual basis
assessment is external to instruction – marked by someone other than the student's teacher	assessment is part of instruction – determined by the student's teacher – subject to validation and audit at the district level
assessment based on student responses on a "paper and pencil" measure	assessment based on student performance of assigned tasks including but not limited to "paper and pencil" measures
individual student performance on four tests analyzed by outcome for use by teacher	individual student performance on tasks used by teacher, student, and parent for diagnosis, planning, and celebration of success

Measuring Growth

1. *Field Test of Prototype Task* – A prototype task was developed and field-tested with year one students (that is, students in their first year of schooling, excluding kindergarten) in nine elementary schools in June 1990. The multiple activity task was based on the general theme of "change" and required the students to participate in an activity related to at least two writing activities, drawing, self-reflection, and reading.

Teachers made judgments on grade level of achievement based on the initial set of achievement criteria. The field test addressed essential learning outcomes, indicators, grade level of achievement, and identification of the sources from which teacher judgments were made. The essential learning outcomes and selected indicators are shown in Table 2.

Table 2

Learning Outcomes and Selected Indicators

Learning Outcome	Selected Indicators
communication	reading writing
responsible citizenship	participating cooperating providing service
well-being	making choices exhibiting positive life habits
knowledge	applying calculating
inquiry	hypothesizing researching decision making
aesthetic appreciation	valuing expressing

The results of the prototype task in June 1990 were analyzed with the objective of developing achievement criteria and a more refined task for administration in the 1990-91 school year. The analysis and developmental work were carried out by working committees of teachers, district consultants, and curriculum specialists.

Inservice training was provided in May 1991 to teachers of year one students in nine schools selected to pilot the more comprehensive measure which was administered in May 1991 to year one students (other years optional) in nine pilot schools. The student products were collected for analysis and central scoring in July 1991.

In 1991-92, trials were carried out with tasks developed for students in years one to twelve in 40 demonstration sites was well as cohort participation of students now in year two in the nine pilot schools. Analysis of the results of these measures is continuing in 1992-93, in preparation for administration of the tasks as growth measures in April 1993.

2. *Assessment Task Development and Process Chronology*

1989-90
- one task developed and field-tested in nine elementary schools

1990-91
- prototype task developed and field-tested in nine elementary schools at the year one level
- achievement criteria established and validated by teacher, consultant, and curriculum specialist teams

1991-92
- 14 tasks developed and the 1989-91 tasks revised
- 15 tasks piloted in 35 schools representing "years in school" one to twelve (see Table 3)
- each task cross-referenced to essential learning outcomes and relevant course of study outcomes and expectations
- inservice training and consultant facilitation to complete judgments for each essential learning outcome and selected indicator provided to teachers
- achievement information recorded by teachers
- over 2,000 students participated in the administration of the tasks

1992-93
- analysis of the teacher judgments against criteria provides initial verification of the validity of the assessment instruments and strategies (work in progress)

Table 3

Assessment Tasks and Essential Learning Outcomes

Number	Task Name	Essential Learning Outcomes Demonstrated*
1	Patterns	All 6 outcomes
2	Relationships	All 6 outcomes
3	Adapting to the Environment	All 6 outcomes
4	Opposites	All 6 outcomes
5	Traffic Flow	All 6 outcomes
6	Points of View	Communication
7	Linking the Past to Today	Communication
8	Heroes and Heroines	Communication
9	Literary Traditions	Communication
10	A Greek Myth	Communication
11	Limits to Population	Inquiry
12	"Roto-copters"	Inquiry
13	Exploration of Shapes	Inquiry
14	Transportation	Inquiry
15	All Summer In A Day	Inquiry

* Essential learning outcomes: 1 communication, 2 responsible citizenship, 3 well-being, 4 knowledge, 5 inquiry, 6 aesthetic appreciation.

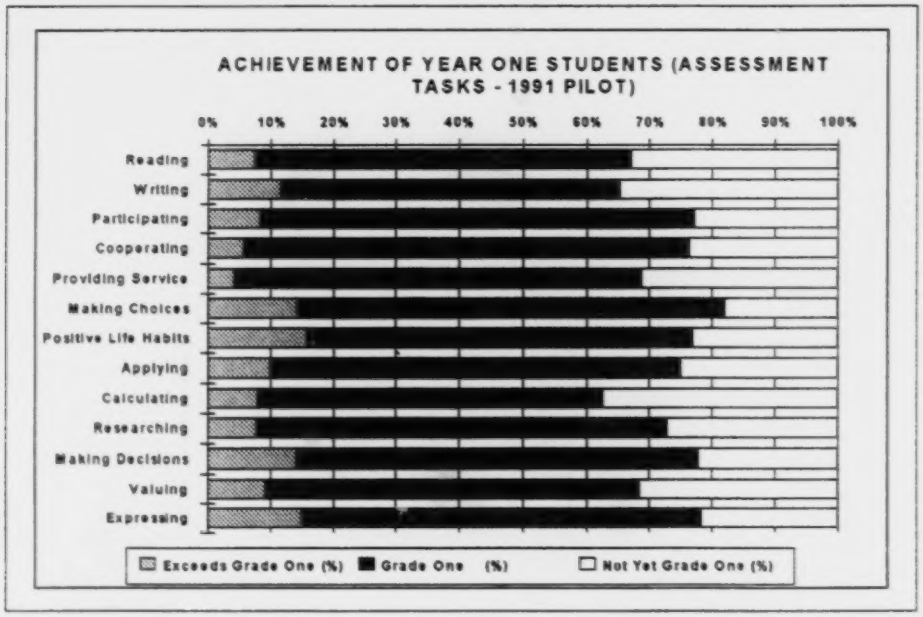


Figure 2: Graph of Year One Achievement (Pilot Assessment Tasks)

Table 4
Achievement Data -- Year One Students (Pilot Assessment Tasks)

Essential Learning Outcome	Indicator	Exceeds Grade One (%)	Grade One (%)	Not Yet Grade One (%)	N= (valid cases out of 422)
COMMUNICATION	Reading	7.5	59.5	33.0	348
	Writing	11.7	53.5	34.8	368
RESPONSIBLE CITIZENSHIP	Participating	8.3	68.9	22.8	360
	Cooperating	5.8	70.5	23.7	359
	Providing Service	4.3	64.5	31.2	349
WELL-BEING	Making Choices	14.4	67.6	18.0	367
	Positive Life Habits	15.9	61.0	23.1	364
KNOWLEDGE	Applying	10.0	65.1	25.0	371
	Calculating	8.1	54.5	37.4	369
INQUIRY	Researching	7.8	65.0	27.2	371
	Making Decisions	14.3	63.5	22.2	370
AESTHETIC APPRECIATION	Valuing	9.2	59.2	31.6	370
	Expressing	15.1	63.1	21.8	371

4. Correlation of Grading Judgments of Analysts and Teachers – All student work from the tasks was judged separately by the student's teacher and by analysts who had had major involvement in the establishment of scoring criteria. The levels of agreement on each indicator and the resulting correlations are shown in Figure 3 and Table 5.

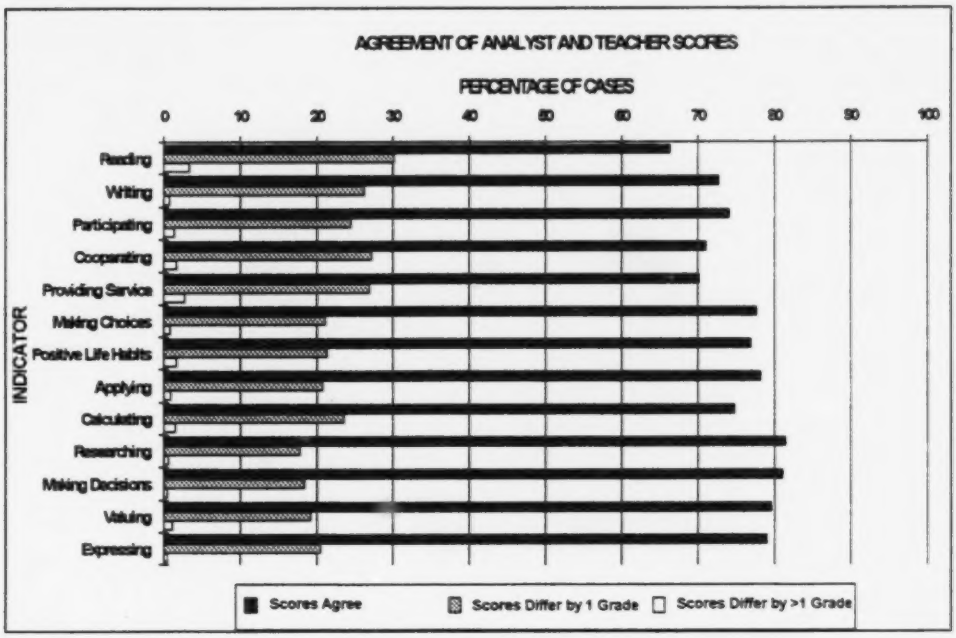


Figure 3: Agreement of Analyst and Teacher Judgments

Table 5
Data: Correlation Between Analyst and Teacher Judgments

Indicator	Scores Agree	Scores Differ by 1 Grade	Scores Differ by >1 Grade	Correlation
Reading	66.4	30.2	3.4	0.5
Writing	72.8	26.3	0,8	0.7
Participating	74.1	24.5	0.8	0.6
Cooperating	71.1	27.3	1.7	0.5
Providing Service	70.2	27.0	2.8	0.5
Making Choices	77.7	21.2	0.9	0.6
Positive Life Habits	76.9	21.4	1.7	0.6
Applying	78.2	20.8	1.0	0.7
Calculating	74.8	23.6	1.6	0.6
Researching	81.5	18.4	0.5	0.7
Making Decisions	81.1	18.4	0.5	0.7
Valuing	79.6	19.2	1.2	0.7
Expressing	79.0	20.5	0.5	0.7

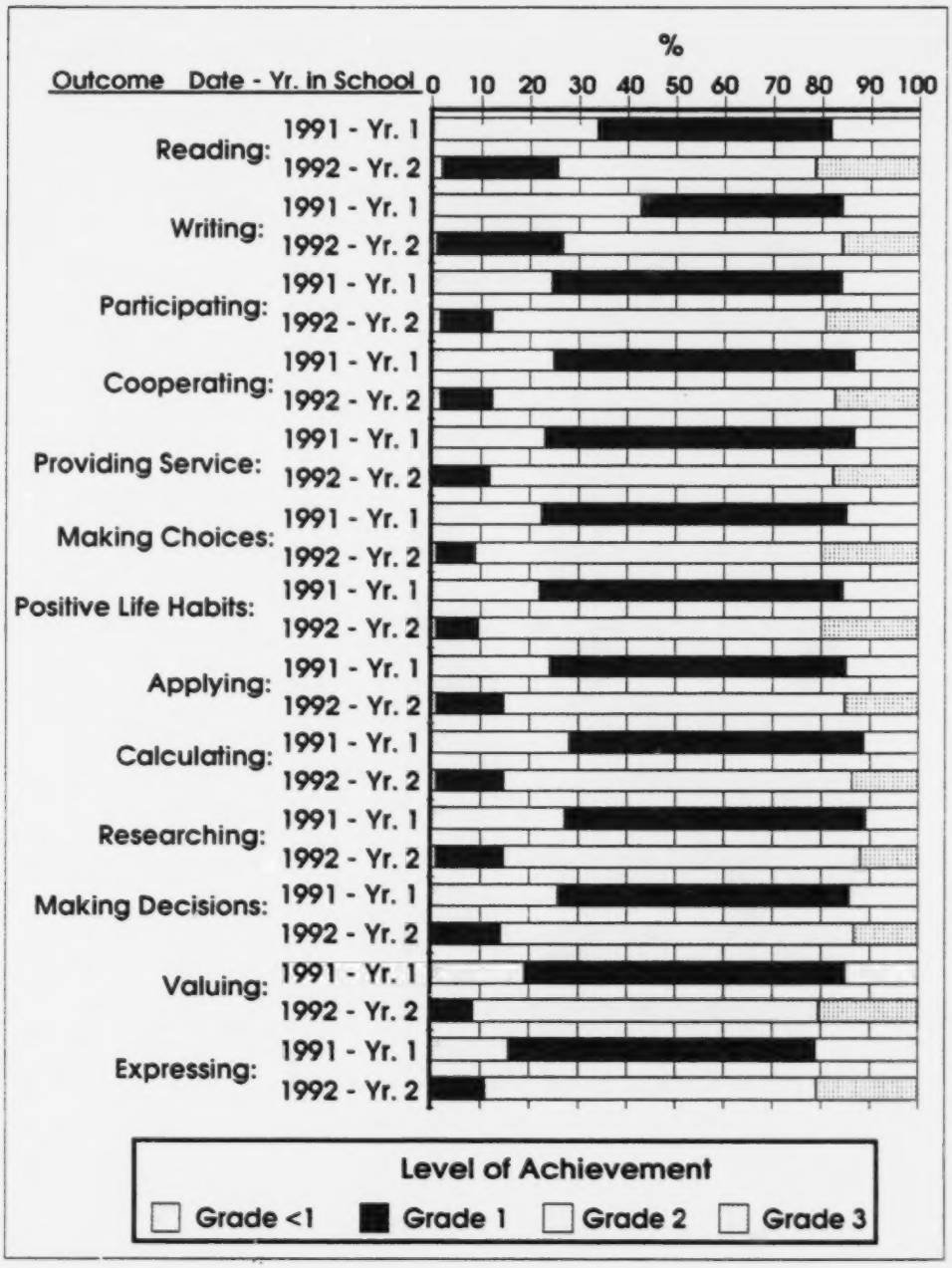
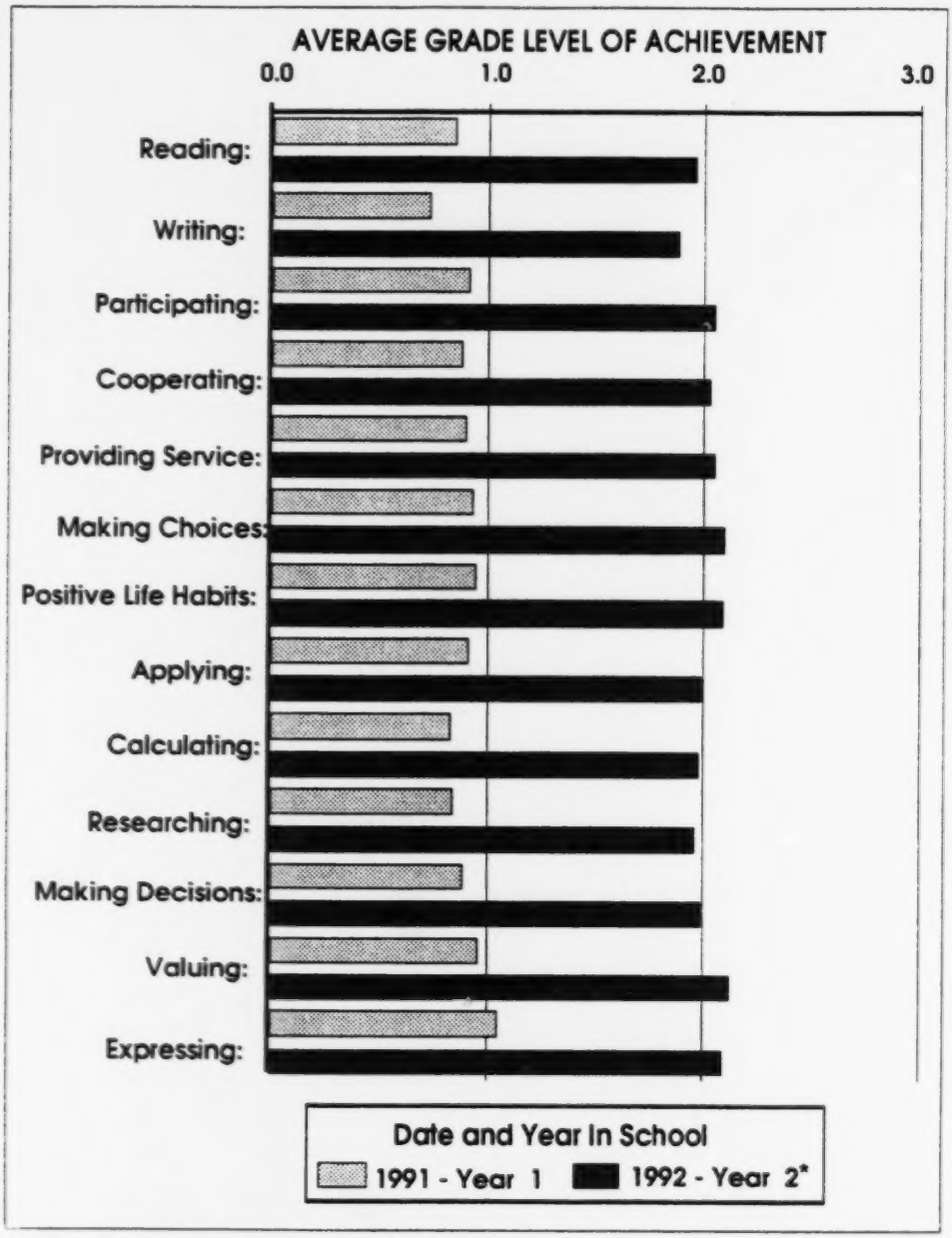


Figure 4: Percentage of Students at Given Grade Levels of Achievement Nine Pilot Schools, 204 Students, 1991 and 1992

Table 6

Percentage of Students At Given Grade Levels of Achievement

Indicator	Grade <1	Grade 1	Grade 2	Grade 3
Reading: 1991 Yr. 1	34.0	48.0	18.0	0.0
1992 Yr. 2	2.0	24.0	54.0	22.0
Writing: 1991 Yr.1	43.0	42.0	16.0	0.0
1992 Yr.2	1.0	26.0	58.0	16.0
Participating: 1991 Yr.1	25.0	60.0	16.0	0.0
1992 Yr. 2	2.0	11.0	69.0	19.0
Cooperating: 1991 Yr.1	25.0	62.0	13.0	0.0
1992 Yr. 2	2.0	11.0	71.0	17.0
Providing Service: 1991 Yr.1	23.0	64.0	13.0	0.0
1992 Yr. 2	1.0	11.0	71.0	18.0
Making Choices: 1991 Yr.1	22.0	63.0	15.0	0.0
1992 Yr. 2	1.0	8.0	71.0	20.0
Positive Life Habits: 1991 Yr.1	22.0	62.0	16.0	0.0
1992 Yr. 2	1.0	9.0	71.0	20.0
Applying 1991: Yr.1	24.0	61.0	15.0	0.0
1992 Yr. 2	1.0	14.0	70.0	15.0
Calculating 1991: Yr.1	28.0	60.0	11.0	0.0
1992 Yr. 2	1.0	14.0	72.0	14.0
Researching: 1991 Yr.1	27.0	62.0	11.0	0.0
1992 Yr. 2	1.0	14.0	74.0	12.0
Making Decisions: 1991 Yr. 1	26.0	60.0	14.0	0.0
1992 Yr. 2	1.0	14.0	73.0	13.0
Valuing 1991: Yr. 1	19.0	66.0	15.0	0.0
1992 Yr. 2	0.0	9.0	71.0	21.0
Expressing: 1991 Yr. 1	16.0	63.0	21.0	0.0
1992 Yr. 2	1.0	11.0	68.0	21.0



*Note. Year two data cover a two-year period.

Figure 5: Growth in Essential Learning Outcomes, Nine Pilot Schools, 204 Students

Table 7

Growth in Essential Outcomes (Nine Pilot Schools, 204 Students)

Indicator	Average Grade Level of Achievement of Year One Students 1991	Average Grade Level of Achievement of Year Two Students 1992
Reading	0.9	2.0
Writing	0.7	1.9
Participating	0.9	2.1
Cooperating	0.9	2.0
Providing Service	0.9	2.1
Making Choices	0.9	2.1
Positive Life Habits	0.9	2.1
Applying	0.9	2.0
Calculating	0.8	2.0
Researching:	0.8	2.0
Making Decisions	0.9	2.0
Valuing	1.0	2.1
Expressing	1.1	2.1

6. *Development of Achievement Criteria* – Achievement criteria for selected indicators of communication for grades 1 to 12 were developed in 1990-91 by a committee of ten teachers and two consultants. These indicators were revised and refined in July 1991 for grade 1, and during 1991-92 for grade 2. Preliminary criteria for selected indicators of inquiry for grades 1 to 12 were developed during 1991-92 and will be revised and refined during 1992-93. Preliminary criteria for the selected indicators of the other four essential learning outcomes will be developed during 1992-93.

7. *Curricular Relevance* – Developmental work has proceeded on the topic of relating essential learning outcomes and selected indicators to language arts, mathematics, science, social studies, health, and art.

8. *Assessment Task Administration 1991-92* – To maintain reliability of procedures and results, teachers at demonstration sites were provided with specific task administration routines for each of the 15 tasks. These guidelines included a statement of purpose, a process model, and an outline of steps and activities.

9. *District Implications* – Multiple strategies and measures for student assessment are now included in district practices in Edmonton Public Schools. Current and proposed practices in each of the 193 schools are guided by the principles for assessment, evaluation, and communication of student growth (see Rationale).

Portfolio Design

Initial work on establishing suitable physical designs for a student portfolio was an important catalyst for the examination of more vital issues such as the possible range of contents in a portfolio, the implications of regulations under the School Act that define contents of a student record and the access to that record, and logistical problems that could be associated with full utilization of a portfolio assessment system. Models of suitable portfolio "containers" were produced but it soon became clear that the most suitable physical arrangements for managing most of the potential contents of a student's portfolio were those developed at the local school and classroom level. The number of methods used is likely to be as numerous as the number of teachers employing portfolio assessment procedures.

Prototype Computer Technology

1. Pen-based Systems – The two competing systems on the market, Microsoft Windows for Pen Computing and Go Corporation's PenPoint, were evaluated for possible application as data collection systems for teacher use in the classroom. The findings were:

- both systems were unstable
- hand-printed character recognition was inconsistent and unreliable
- the devices were bulky and unsuitable for teacher use in the classroom setting
- acquisition costs are high

Clearly, the pen-based systems are still using an immature technology. No further evaluation or development of suitable application software is contemplated until the second generation of pen-based computing devices is developed.

2. Prototype User Screens – A series of prototype screens has been developed using the standard "Windows" screen format and Visual Basic as the development language. Development is continuing in parallel with the development of assessment tasks and related reporting procedures in the design project. Static screen capture images of the various interfaces developed to date are shown in Figures 6 to 10.

The flexibility of the design tool is such that suitable screens and the underlying application for the capture and presentation of student growth information can now be developed very quickly, including the incorporation of scanned image and recorded sound when appropriate.

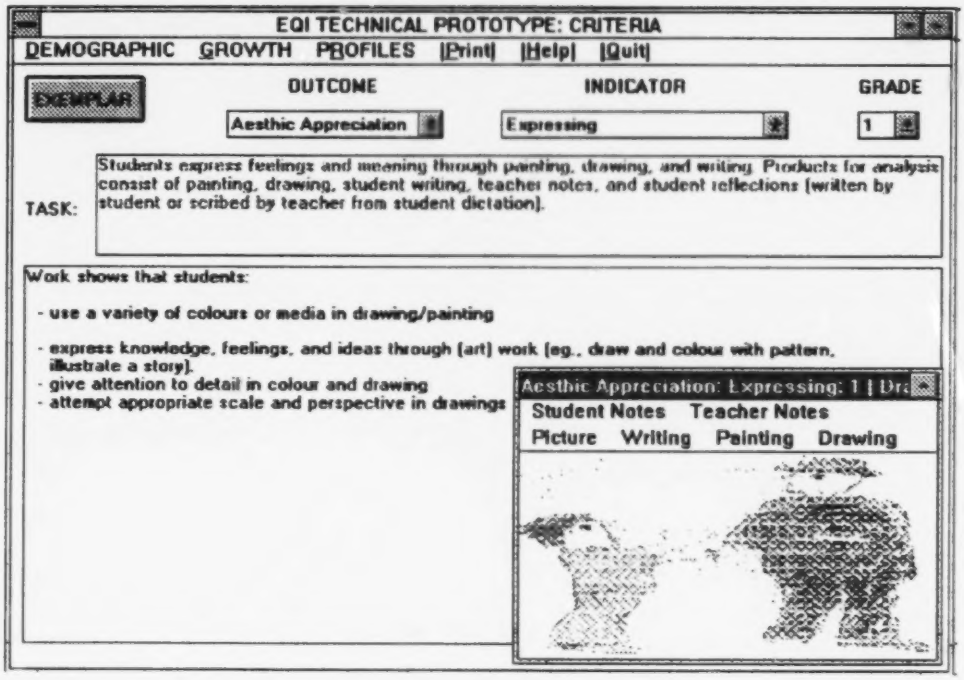

EQI TECHNICAL PROTOTYPE: CRITERIA
DEMOGRAPHIC GROWTH PROFILES |Print| |Help| |Quit|
EXEMPLAR
OUTCOME
INDICATOR
GRADE
Aesthic Appreciation
Expressing
1
TASK:
Students express feelings and meaning through painting, drawing, and writing. Products for analysis consist of painting, drawing, student writing, teacher notes, and student reflections (written by student or scribed by teacher from student dictation).
Work shows that students:
- use a variety of colours or media in drawing/painting
- express knowledge, feelings, and ideas through (art) work (eg., draw and colour with pattern, illustrate a story).
- give attention to detail in colour and drawing
- attempt appropriate scale and perspective in drawings
Aesthic Appreciation: Expressing: 1 | Dr
Student Notes Teacher Notes
Picture Writing Painting Drawing

Figure 6: A Screen to Display Criteria and a Scanned Image of Student Work

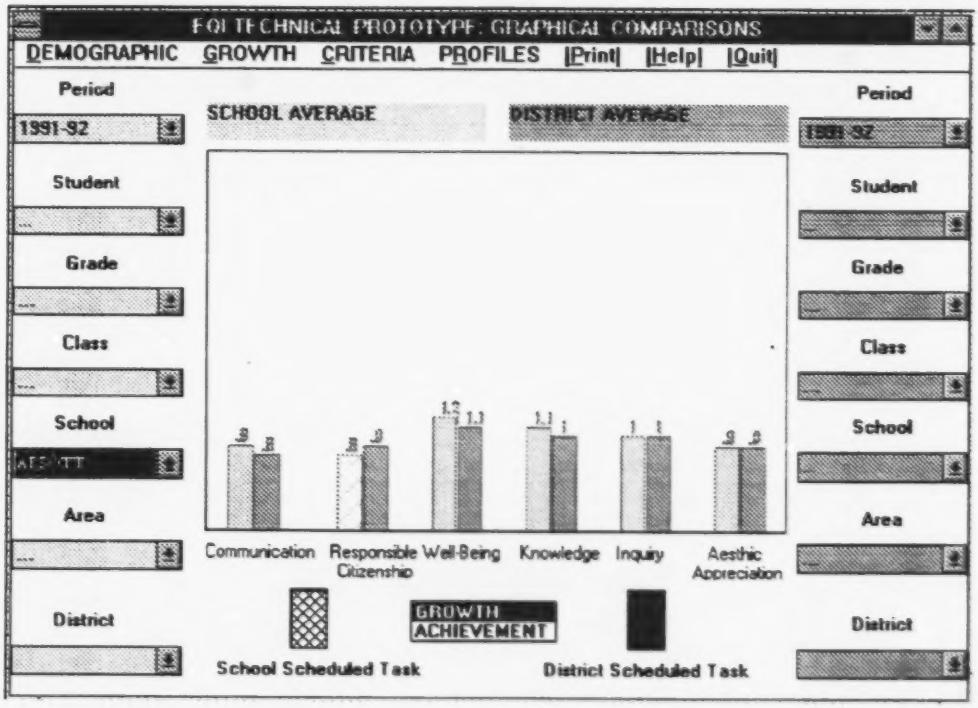


Figure 7: A Screen to Display Graphical Comparisons of Student, Class, School, District, or Date Level

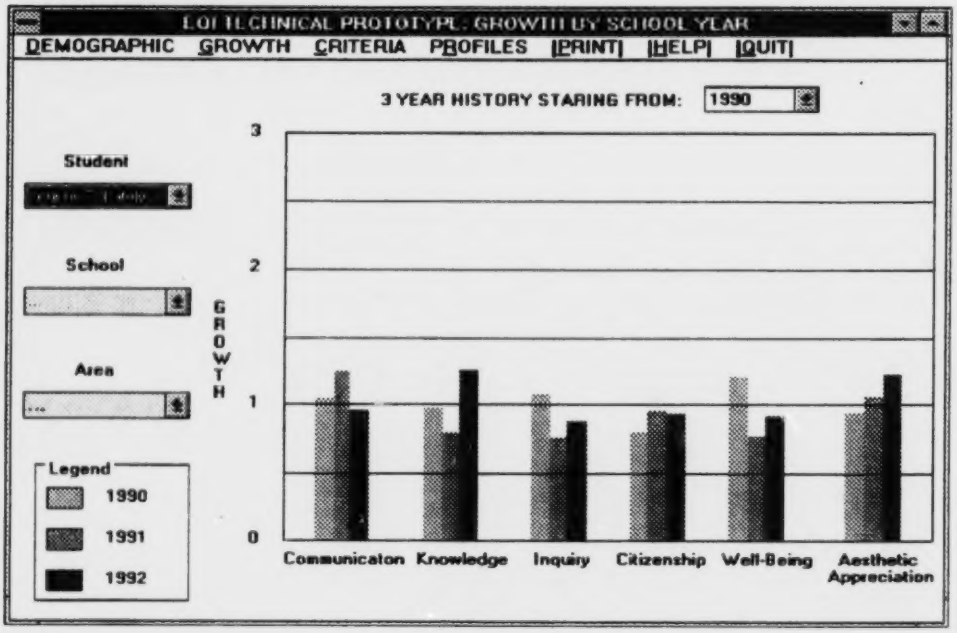


Figure 8: A Screen to Display Student Growth by School Year

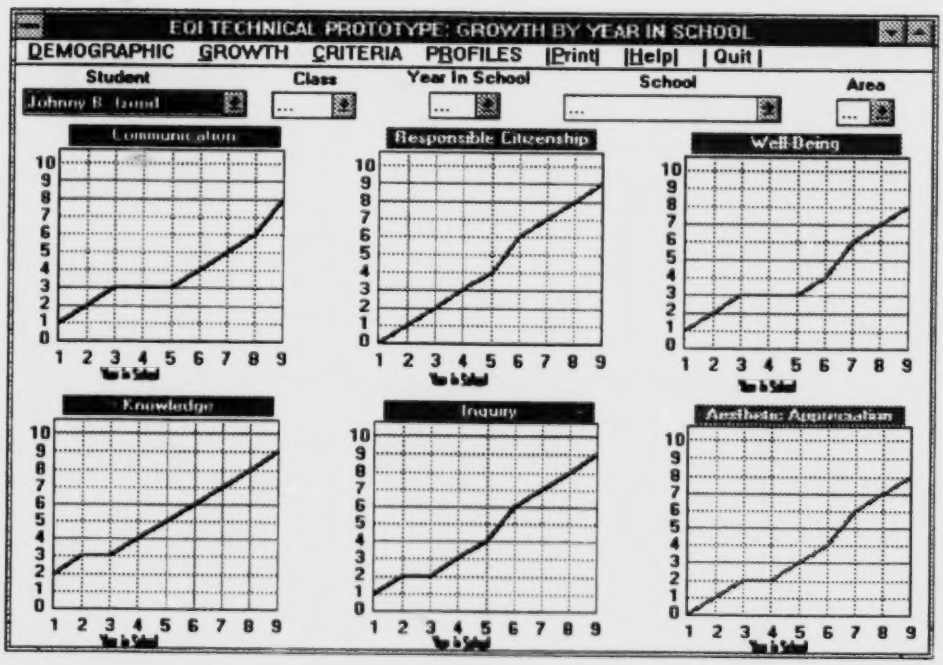


Figure 9: A Screen to Display Student Growth by Year in School

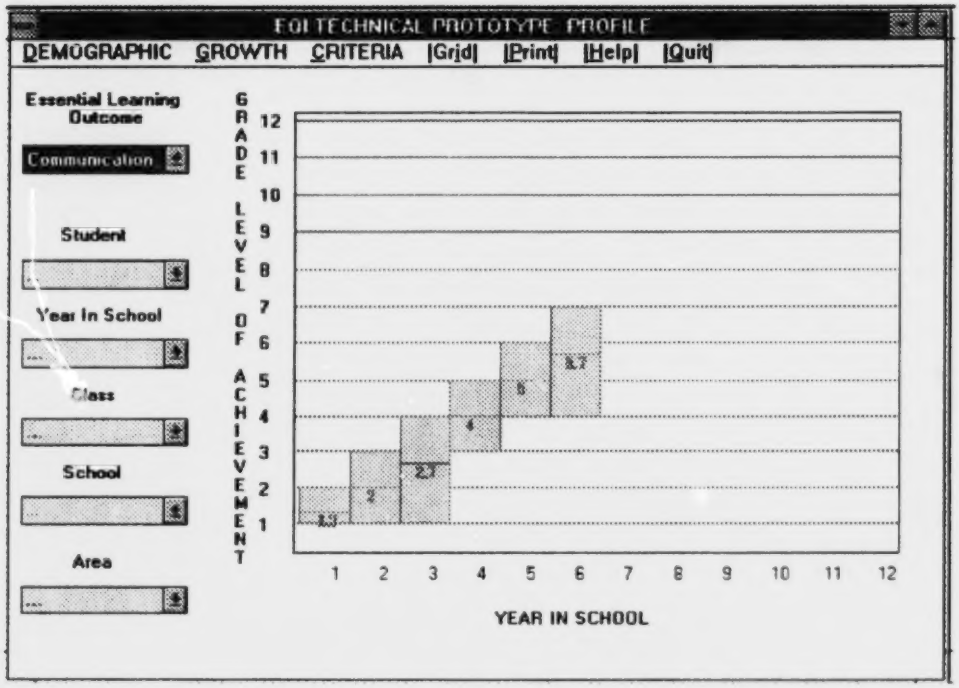


Figure 10: A Screen to Display Profiles by Student, Class, School, Area, or District (Based on Range of Achievement by Year in School)

3. Requirements for Wide Area Network Upgrading – The technical requirements for an upgraded wide area network have been identified. These address the need to accommodate high data traffic flow, image transfer, distributed processing of data where appropriate, and internal school and central connections to local area networks.

The recent developments in data communications standards and implementation of fibre optic systems have made the technical concept feasible. The wide area network, which would interconnect all schools and central operating units independent of computer type, will meet the data communication needs and storage demands of the district's monitoring functions. Issues that continue to be addressed include:

- affordability
- cooperative line charge arrangements with the carriers
- continuing instability of local area networks
- security of data
- the role of "multimedia" in the assessment process and the technical challenge of handling heavy data traffic on a wide area network

4. *Computer Assisted Student Progress Reporting* – A flexible and stable application has been written which allows teachers to key-enter their own commentary for each student and produce a centrally printed progress report, via local area network to the school office. The report includes the student's picture, comments, and "marks". The system is in use in three schools and incorporates many design features suggested by classroom teachers.

There is a clear connection between this developmental work and the work related to user screens for presentation and capture of student growth information. The current progress reporting system is designed for the Macintosh computer but it is planned that a DOS/Windows version will shortly be available for use by a wider range of schools. The system is compatible with wide area network standards. It is anticipated that the two initiatives, progress reporting and student growth user screens, will be merged.

Conclusions

Although there remain many unanswered questions and much work still has to be done, the findings from the first three years of the project are encouraging and give promise for the future. Teacher and student comments indicate that the tasks and results can be useful in enhancing the reporting of student achievement and growth. The data derived from the teacher evaluations can be used by teachers as part of their assessment of the individual student's achievement and growth and can be aggregated at the school and district level to provide useful accountability information. At the same time, portfolios of student work can be used to discuss and validate a student's individual progress during conferences among teachers, parents, and students.

The feasibility of developing easy to use computer applications for the capture, display, and communication of students and growth has been established.

Follow-up

- Revision and design of tasks for students in years one to twelve
- Preparation of teachers for task administration
- Administration of revised and developed tasks in spring 1993
- Refinement, development, and application of achievement criteria
- Judgment of student achievement in the demonstration schools
- Collection and reporting of growth information
- Development of paper and computer formats for display of growth data at all levels
- Preparation of a staff development plan
- Attempt to resolve identified issues

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Educational Quality Indicators in Art and Mathematics

Calgary School District No. 19 and Calgary RCSSD No. 1

The Calgary Educational Quality Indicators (EQI) Project was a three-year action research project (1989 - 1992) funded by Alberta Education to develop indicators of quality student performance in school art composition and mathematical problem solving at the Calgary Board of Education (CBE) and the Calgary Catholic Board of Education (CCBE).

Purposes

The purposes of the EQI Project were to:

- identify indicators of quality work which can be applied in the assessment of student achievement in areas of art and mathematics
- identify conditions that appear to enhance or limit the achievement of quality
- develop strategies for collecting quality student work which include recorded interviews with teachers and students
- examine quality work with emphasis on alternative assessment strategies to paper-and-pencil testing

The project was part of a larger, province-wide initiative sponsored by Alberta Education to build sets or clusters of indicators to use in a broader approach to assessment.

Rationale

The Calgary project focused on assessing performance in the areas of art and mathematics. These subject areas were chosen because of preliminary work which had already been done at the CCBE in the area of art assessment and because of mathematics expertise at the CBE. Further, it was reasoned that the two areas could allow a unique exploration of the assessment of student *product* and *process*. The art project could examine the product of the learning, as much of art education had

stressed process in the past, and the math project could examine the process of student thinking, as most math education had emphasized the product, or answer, in the past.

Design

The project design incorporated three phases: the development, field testing and pilot testing of quality indicators. Committees of teachers and subject specialists reviewed student work, identified characteristics of quality work, considered alternative approaches for recording assessment information, and proposed activities and materials for use in classrooms. Classroom teachers tried out a variety of materials and approaches with their students, materials were revised and then were piloted with other teachers.

The project had a full-time designated director who was located at the Calgary Board of Education. A steering committee, comprised of school system superintendents, subject area specialists, and representatives from Alberta Education provided coordination and leadership. A community advisory committee, comprised of university professors, leaders in the fields of art and mathematics, parent representatives, representatives of the Alberta Teachers' Association, and members of the business community provided a sounding board to test project ideas. Finally, two subject area advisory committees, with specialists from both boards, provided "hands-on" decision making for the action research in each area.

Tables 1 and 2 summarize the involvement of staff, the tasks performed, and the results of the three years of the project.

Findings

Art

The art component of the project culminated in the development of the *Educational Quality Indicators Handbook*. The handbook includes color reproductions of quality samples of students' art from grades 2 and 5, and from junior and senior high schools. Teacher expectations for each lesson and student comments assessing their own work are also included. Three quality indicators emerged from the project as observable characteristics to be found in students' work. They were *relationships, handling* and *meaning*. This work is linked to the Alberta Education program of studies in art. Student and teacher journals were used in the pilot test to assist in reflective practice on the part of both teachers and students.

Project findings for the art component included the following:

- Quality assessment practice supports improved art making.
- Attending to written and/or spoken student responses, reflections and thoughts illuminates the art work.
- Quality art assessment is a shared experience between students and teachers.

Table 1: EQI-Art Project Outline

	Phase 1: 1989-1990 DEVELOPMENT	Phase 2: 1990-1991 FIELD TESTING	Phase 3: 1991-1992 PILOT TESTING
Personnel	school system art specialists (4) teacher researchers (7)	school system art specialists (4) teacher researchers (7)	school system mathematics specialists (5) pilot teachers (8)
Tasks	categorized student art "above average," "average" and "below average" developed formats for assessing art: checklists, questions and narrative critique	removed categories of student art art assessment to focus on "what is of quality in this work" described 3 quality indicators in narrative format: • relationships • handling • meaning field tested handbooks, collected recommendations	prepared draft handbook to include all grades inserviced pilot teachers added teacher and student journals used handbook in classrooms for 4 months specialists visited all pilot teachers 2 or more times
Results	prepared 4 prototype "Quality Indicators Handbooks" • 2 or 3 sample lessons for grades 2, 5, 8 and 11 • lesson included teacher expectations, classroom conditions • student voice/intention added beside artwork developed criteria for 3 characteristics: • relationships of elements and principles of design • handling of the media • meaning or intention identified 5 categories of art: • directed observations • narrative works • responses to works of art • special communications of the self • design problems	4 handbooks: for grades 2, 5 junior and senior high recommended a SINGLE handbook — all grades included inservice and additional suggestions for use of handbok requested more examination of "thoughtfulness" encouraged	use of journals a key element for most pilot situations model of assessment practice well received by teachers, students, parents and others expansion of single handbook: extensive introduction, more ideas for use of journals, reflective practices handbook edited and printed

Table 2: EQI-Math Project Outline

	Phase 1: 1989-1990 DEVELOPMENT	Phase 2: 1990-1991 FIELD TESTING	Phase 3: 1991-1992 PILOT TESTING
Personnel	school system mathematics specialists (5) teacher researchers (14)	school system mathematics specialists (5) teacher researchers (14)	school system mathematics specialists (5) pilot teachers (8)
Tasks	problem solving dispositions identified through anecdotal records of problem solvers problem bank developed problem format and student attitude questions chosen holistic scoring studied	10 problem solving dispositions tracked open-ended anecdotal records kept 8 problems administered: choice of time for response and group work 2 scorings for each problem student attitude responses collected — different for all grades classroom environment described by teachers	5 problem solving dispositions tracked structured anecdotal records kept 6 problems administered: choice of time for response and group work 2 scorings for each problem student attitude responses collected — same for all grades classroom environment described by specialists
Results	10 dispositions for all grades: confidence, perseverance, risk taking, understanding, achievement orientation, motivation, communication, creativity, organization, and reflection holistic scoring: "A" inadequate "B" adequate "C" competent	10 dispositions too unwieldy: analysis helped develop 5: • motivated • creative • confident • strategic approach • strategic process problems reworded problem formats reviewed: rewording/ removal of grids for answer formats new holistic scoring developed: • preliminary • partial • complete • elegant	dispositions gave important, useful information problem scoring positive, effective, quite consistent anecdotal records still problematic student attitude responses not useful environmental scan questioned

- Effective art assessment depends on common vocabulary shared by teachers and students.
- The collection of quality art exemplars emphasizes diversity as an attribute of a quality art program.
- Expert professional judgment benefits from collegial work.
- Quality assessment takes time.
- EQI handbook exemplars are a way to share expertise and to develop connoisseurship.

Mathematics

The math component explored the concept of holistic scoring and developed some response criteria. These included *preliminary response, partial response, complete response* and *elegant response*. A series of students' mathematical dispositions were identified, including *motivated, creative, confident, strategic approach* and *strategic process*. Conditions for the math learning environment were also considered.

Project findings for the mathematics component included the following:

- Teachers report positive changes to their teaching and assessment practices as a result of participating in EQI-Math.
- Teachers want to meet to discuss teaching and assessment. The experience of working closely with colleagues was very positively received.
- Useful materials and practices developed in the project include student dispositions, holistic scoring and the exploration of diverse student responses and quality solutions to mathematical problems.
- The use of anecdotal records, student attitude reports and generalizations about classroom conditions are not seen as practical, due to time and energy constraints.
- Students seem to be more positive about problem solving, take more risks, and demonstrate more confidence as a result of the EQI project.
- Systematic methods for observing students closely help teachers with teaching decisions and with assessment and evaluation tasks.
- Students respond to invitations to express themselves more fully and to think about their thinking.

Common Findings

As the EQI project evolved over the course of three years, commonalities emerged about the making of art and the solving of mathematical problems. They include:

- Complexity of thinking processes are common to both art and math problem solving.
- Art and math present assessment challenges to teachers.
- Quality assessment practice in art and mathematics supports teacher decision making about teaching and assessment.
- Attending to written and spoken student responses, reflections and thoughts illuminates the art work or the problem solution.
- Quality assessment is a shared experience between teachers and students which is encouraged by shared exemplars and a shared vocabulary.
- Qualitative assessment takes time for both teachers and students.
- Exemplars are a way to share expertise, develop connoisseurship, establish common expectations for student outcomes and celebrate diversity of student response.

Other Observations and Conclusions

Learning theory provides us with the view of the learner as an active meaning maker, constantly making decisions and adapting new experiences in the making of new knowledge. Corresponding to this view of the learner, the EQI project assessment procedures assisted in illuminating the learner outcomes, celebrated and encouraged diversity of outcomes, and helped both teachers and learners share in the assessment process. As a result of this sharing, researchers observed the following:

- Many educators are attempting to implement new assessment techniques through the use of student portfolios, performances and extended projects. The materials from EQI Calgary provide some foundational understandings and methods that would give these new forms of assessment increased validity.
- Informed professional judgment develops when teachers have opportunities to work with colleagues and share new strategies and insights.
- The EQI-Math teacher researchers and pilot teachers report that discussing student responses with other teachers is an important benefit of participation in this project.
- A logical extension of the EQI practice of assessment is its use in formal evaluation and reporting practices.

- The findings and conclusions from this project suggest that the processes used for developing new approaches to assessment in art and mathematics may be valuable for other subject areas as well.

Recommendations

At the conclusion of the Calgary EQI Project participants at all levels assisted in the preparation of recommendations for future development of the project ideas and materials. The participants recommended that:

- the findings from this study be incorporated into evaluation and reporting practices
- the *EQI-Art Handbook* and the *Problem Solving Profiles* be published and made available to schools within the CBE, the CCBE, and to other school systems on request
- teacher education include a variety of assessment skills in course work
- teachers be encouraged to develop professional collections of quality student exemplars in art and in mathematics
- teachers be provided with opportunities to work on collegial assessment of student work
- school jurisdictions be invited to expand the EQI project process to include other disciplines

In conclusion, this project reaffirms the importance of thoughtful reflection on the part of the students and teachers in the assessment of student work. It is also clear that innovation requires system support, guidance and time. When teachers and students are informed by experts, connoisseurs and the literature, they have the knowledge and skill to engage in meaningful assessment.

Academic Outcomes and Behavior

– Identifying Quality Indicators

Brooks School District No. 2092

The purpose of the Brooks EQI Project was to study student behavior and academic achievement. We identified a set of quality indicators of responsible student behavior in the schools. The community was involved in promoting mutually supportive efforts in maintaining and improving student behavior. As an outcome of our project, we developed a set of measures and a set of community beliefs regarding the behavior of our youth.

Context

The Brooks School District is located in the town of Brooks which has a population of 9,500. The town is surrounded by 257,000 acres of irrigated farmland and over a million acres of rangeland used for livestock grazing. The lands surrounding Brooks support an active oil industry.

The Brooks School District's six schools are located within an eight-block radius in the town of Brooks in southeastern Alberta. The community is stable and there is much pride in the school district. In September 1991, there were 2,372 students, 127 teachers and 46 support staff.

Purposes

The purposes of the Educational Quality Indicators (EQI) Project in the Brooks School District were:

1. to study the validity of the premise: quality education in Brooks is perceived to be the result of the "right" blend of attention to academic success and attention to development of "character" within the framework of a firm, but supportive set of behavioral expectations and policies; and

2. as an outcome of addressing the premise we expect to define a valid set of quality indicators.

The expected long-term results are:

- higher satisfaction and confidence among students, graduates, and employees with respect to the educational product as measured by staff questionnaires, administrator interviews, student homework completion rate, vandalism rate, discipline rate, former student survey, and telephone interviews;
- a higher than normal percentage of counseling/discipline related cases (for example, our denial of student privileges, suspension and expulsion rates may be higher due to our firm stand on acceptable behavior);
- a lower dropout rate;
- maintenance of high academic achievement test results, diploma exam results, participation rates and Rutherford Scholarships;
- wider acceptance of the quality indicators developed by stakeholders in Brooks.

The literature suggests that the result of the "right" blend of attention to academic success and development of "character" depends on the student and circumstance. The values taught at school as well as in the home are important. It is clear that both ingredients must exist in order for quality education to occur. The Brooks EQI Project concentrated on desirable student behavior and outcomes on a school district basis.

Design

The Brooks EQI Project spanned three years. The first stage of the project, 1989-1990, identified a set of quality indicators. Interviews were conducted with administrators and trustees, and teachers provided their perceptions in writing; these formed the basis for a questionnaire that was completed by the school district personnel. Information from these sources was used to identify the quality indicators.

The second stage of the project, 1990-1991, involved collecting data in the following areas: a survey by former students; information on counseling/ discipline; homework completion rates; interviews on a very small sample of former students who had been expelled or received a Rutherford Scholarship. Data were subsequently collected on school vandalism. Achievement test results were analyzed for students in grades 3, 6, 9 and diploma exam results for grade 12. An action plan was devised with administrators to address the information collected.

The third stage of the project, 1991-1992, implemented the action plan. The community was involved in completing a profile, and developing a set of beliefs and a tentative action plan to follow up on perceived needs.

Responsible Student Behavior

One indicator of a good school district is high expectations of student behavior. The Brooks School District chose to study outcomes of student behavior in terms of homework completion, and lack of vandalism. We also collected student opinion on standards of conduct in our schools. Administrators who actively counsel students and a supportive school board collaborate to promote positive student behavior.

Indicators of responsible student behavior included high expectations, mutual respect and recognition, pride in self, others, home, school and community, courteous, supportive caring and sharing attributes, and mutual trust and open communication.

The following model illustrates the indicators of responsible student behavior in the community.

High Expectations
Mutual Respect and Recognition
Responsible Student Behavior in the Community
Mutual Trust and Open Communication
Pride in Self, Others, Home, School & Community
Courteous, Supportive, Caring and Sharing Attributes

Figure 1: EQI Model of Indicators of Responsible Student Behavior

- *High expectations* – The staff and trustees of the Brooks School District believe that adults must have high expectations of student behavior. Students must internalize the expectations and in turn demonstrate self-discipline. In order to promote self-discipline, adults must consistently help children to see themselves acting responsibly rather than constantly having to enforce positive behaviors. All Brooks staff and trustees demonstrate a commitment to developing responsible behavior.

- *Mutual respect and recognition* – Encouragement to celebrate positive and responsible behavior is provided through counseling and coaching. Respect for the rights of others and a sense of tolerance and understanding are promoted. Adults, especially teachers, model mutual respect and recognition.

- *Pride in self, others, home, school and community* – The personal appearance of staff and students as well as the physical appearance of school buildings show a sense of pride. The teachers actively teach pride through, for example, the care of desks. Pride is encouraged through the celebration of student accomplishments, such as honor roll recognition, scholarships, and so forth.

- *Courteous, supportive, caring and sharing attributes* – Visitors comment on the friendliness and courtesy shown to them by students. Cooperative learning encourages responsible student behavior in the classroom. Integration of special needs students is encouraged.

- *Mutual trust and open communication* – Students take appropriate risks and speak their mind, joke with adults, question policies, and so forth. Schools trust students to live up to expectations. Trust and open communication are modeled by teachers and administrators. There is a positive climate within the Brooks School District.

Findings

In the first year of the project, data collection included staff perceptions, a district questionnaire and interviews with administrators. This resulted in a model of responsible student behavior. During the second year, data collection expanded to include the following areas: homework completion, vandalism, counseling/ discipline, former student survey, telephone interviews, achievement test and diploma exam results, participation rates and Rutherford Scholarships. They measure the indicators of responsible student behavior and high expectations. The results follow.

1. *Homework Completion* – In the fall of 1990, students from grades 4 to 12 were surveyed to determine the amount of homework completed in the Brooks School District on a *Homework Completion Rate* form. The data were collected by teachers over a two-week period. Homework was defined as "any student work (other than studying or reading) that requires time to complete at home". The rate of return by the elementary teachers was 100%, the overall rate of return was 70.6%. Teachers of subject areas without homework such as band and industrial arts were not involved in the task. Homework completion rates for the five participating schools varied from 78.4% to 91.1%. The overall Brooks School District homework completion rate was 84.9%.

2. *Vandalism* – Vandalism rates were collected from September 1990 to December 1990. Vandalism was defined as any action which results in maintenance being involved in cleanup/repair, for example, broken window, graffiti, etc. There was no vandalism recorded during that four-month period.

3. *Counseling/Discipline* – In the fall of 1990, administrators collected information regarding counseling/discipline in the Brooks School District. The objective was to attempt to determine the number of students disciplined by an administrator, and the effect of the discipline action. Discipline was defined as any administrator contact with students at teacher request. The schools each chose a two-week period in which to collect the nature of the problem, action taken, time involved, and if possible, results of the action.

   In total 103 students were dealt with during the two-week period: 36 cases related to attendance, 14 to safety, 13 work habits, 18 attitude, 14 fighting, 3 profanity, 4 smoking and 1 drinking related problem. Action was taken in 100 cases: 28 follow-up (included detention, student contract, loss of privileges, work packages and in-school suspension), 47 parent contacts, 5 agency contacts, 18 school district contacts (including suspensions) and 2 school board contacts (including expulsions). Thirty-three cases were elementary and 64 were secondary students (6 were unidentified as they were from a school having both elementary and secondary students).

4. *Former Student Survey* – In 1991, former students were sent a 40-item questionnaire asking their opinions about their schooling in the Brooks School District. The questions were organized into 12 categories: student behavior, discipline/ attendance, homework, school cleanliness, satisfaction, student problems, extracurricular activities, teacher/administrator, fairness/recognition, individual attention, parent involvement, and school involvement. Using a 4-point scale, respondents were asked to indicate agreement or disagreement with the statements. The *Former Student Survey* was sent to 749 former students; 175 (23%) responded. Almost half (49%) of the respondents had spent their entire educational career in Brooks, while 25% had spent high school only. The students who indicated post-secondary school plans included: a majority (71%) planned to attend technical school, college or university, 23% planned to work, 2% planned to attend another high school and 1% planned to return to Brooks Composite High School to graduate. Respondents reported that 17% received an advanced diploma with excellence, 42% received an advanced diploma, 35% received a general diploma, while 5% indicated choosing not to complete high school.

   Results indicated that students agreed most that: they learned to solve their own problems; teachers were willing to give students individual help outside of class time; the school(s) maintained a satisfactory appearance; students were expected to behave in an acceptable manner; students knew what was expected of them in school; and there was general satisfaction with the school(s), their teachers and the education received from the Brooks School District. Students disagreed the most with the following: student respect for the property of others; other students' ability to understand their problems; students receiving satisfactory recognition for responsible behavior (e.g., telling the truth, keeping notebooks and locker clean, playing well with others, etc.); the emphasis placed on the social development of students; the help to students to make the transition out of grade 12; the school's guidance and counseling services were satisfactory; the job of helping students understand their moral and ethical responsibilities; recognition for extracurricular accomplishments, and additional time being spent on homework and home study per school night.

5. *Student Interviews* – Telephone interviews were conducted with students who had left school at least three years ago. Students chosen for interviews were either Rutherford Scholarship students or students who had been expelled. The purpose of the interview was to determine former students' perceptions about student behavior within the Brooks schools. Thirty phone calls were attempted to expelled students. Many of the students had changed residences, weren't available or didn't call back as requested. Three requests were refused and three interviews were completed. Thirteen calls were attempted to scholarship recipients. Many of these students were at university. Zero requests were refused and four interviews were completed.

   Of the seven interviews, two students questioned school board policies on attendance and required student behavior. Two students felt that the policies had an effect on student behavior. All the students felt that policies had some effect on all students. Many felt that the home had a stronger influence than school district policies. Students indicated that parents supported the school policies in all Rutherford student cases, and one expelled student case. Five of the students were planning on attending college or university and two respondents were working.

6. *Achievement* – Provincial achievement test results in grades 3, 6 and 9 and diploma exam results in grade 12 for 1989-90 were reviewed. Tables 1 through 3 present the results.

Table 1

Percentage of Grade 3, 6 and 9 Students Achieving Standards on the Total Provincial Achievement Tests, June 1990

Achievement Tests	Acceptable Standard*		Standard of Excellence	
	District	Province	District	Province
Grade 3 Mathematics	97.7	91.8	34.9	26.9
Grade 6 Science	85.6	82.5	24.8	24.6
Grade 9 Language Arts	82.9	82.9	8.5	10.8

* Includes standard of excellence.
Source: Alberta Education

Table 2

Percentage of Grade 12 Students Achieving Standards on the Diploma Exams (Final Blended Mark), January 1990

Diploma Exams	Acceptable Standard* District	Province	Standard of Excellence District	Province
English 30	95.7	95.3	8.7	12.2
English 33	100.0	94.0	0.0	3.8
Social Studies 30	88.6	90.3	9.1	14.1
Mathematics 30	83.7	86.8	23.3	22.3
Biology 30	97.7	88.7	23.3	18.3
Chemistry 30	94.2	89.1	21.2	20.2
Physics 30	78.6	88.8	21.4	22.6

* Includes standard of excellence.
Source: Alberta Education

Table 3

Percentage of Grade 12 Students Achieving Standards on the Diploma Exams (Final Blended Mark), June 1990

Diploma Exams	Acceptable Standard* District	Province	Standard of Excellence District	Province
English 30	94.3	94.9	5.7	12.8
English 33	90.0	90.8	0.0	2.3
Social Studies 30	96.1	89.1	11.8	15.4
Mathematics 30	82.9	82.8	14.6	18.0
Biology 30	96.2	84.9	24.5	19.7
Chemistry 30	85.7	86.1	19.0	21.3
Physics 30	93.8	90.7	25.0	27.6

* Includes standard of excellence.
Source: Alberta Education

7. *Participation* – Table 4 presents the percentage of students who wrote provincial achievement tests and diploma exams. The grade 3, 6, and 9 participation rates are from documentation provided by Alberta Education. The participation rate for the diploma exams was based on the number of students who wrote the tests compared to the September 30, 1989 enrollment. Brooks' participation in these tests was higher than overall provincial participation in all subjects tested except grade 9 language arts.

8. *Rutherford Scholarship* – The total number of 1989-90 grade 12 students receiving a portion or total scholarship was 27; 15 student received the total scholarship for all three years.

Table 4

Participation in the 1990 Achievement Tests and Diploma Exams

Grade	Test	District (%)	Province (%)
Grade 3	Mathematics	94.0	88.3
Grade 6	Science	94.4	86.6
Grade 9	Language Arts	80.7	90.7
Grade 12*	English 30	64.2	57.3
	English 33	26.6	21.5
	Social Studies 30	61.7	48.0
	Mathematics 30	54.5	47.9
	Biology 30	62.3	47.1
	Chemistry 30	47.4	37.3
	Physics 30	28.6	19.9

* Grade 12 rates are based on the total students writing in January and June 1990, divided by the September 30, 1989 enrollment.

Source: Alberta Education

Implementation

Administrators considered what might best be done about the information collected, related literature and personal perceptions, and what plans could be made to improve the district. Important outcomes for administrators were: increased awareness of "what exists" in Brooks; a vision of expected student behaviors in the Brooks School District; ideas, issues and problems which administrators face on a day-to-day basis, that is, what are the obstacles or impediments to attaining the goal regarding student behavior; new ideas about how student discipline could be handled, on a school-wide discipline basis, and an action plan.

The action plan included involving the community in establishing reasonable expectations of children of different ages with respect to conduct and values at home and at school. A series of meetings was organized in 1992 in order to collect information and establish standards to involve others in the identification of what constitutes good behavior and what steps might be taken to promote good behavior.

The purpose for the Character in our Community meetings was to review and reestablish a shared vision among schools, homes and community with respect to developing prosocial attitudes and behaviors among our youth. Our goal was to jointly develop a set of beliefs for our community.

The process for involving the community included setting up a Steering Committee consisting of the superintendent, three school administrators, and the quality indicators director. This committee clarified the purpose of the meetings and fine-tuned the process. It was agreed that a series of three meetings with the community would help assess the support and interest that exist regarding the promotion of prosocial skills in our youth. It was also agreed that there would be a field-test meeting with identified School Advisory Council participants to first validate the process to be used.

The meetings with the community established a set of beliefs as well as a set of statements of personal commitment. These formed the basis for potential community use, and reaffirmed the support for school district efforts in terms of promoting prosocial skills. These belief statements are presented in Figure 2.

Conclusions

In our efforts to determine whether we have the "right" blend of attention to academic success and attention to the development of "character" a baseline of information was established for the Brooks School District. It included how the staff and administrators viewed the district, how much student homework was completed, the amount of vandalism and discipline that occurred, how the former students viewed the district and achievement rates.

Staff and administrators in the Brooks School District believe that students behave responsibly. This is shown in the indicators which were identified: mutual respect and recognition, pride in self, others, home, school and community, courteous, supportive caring and sharing attributes, mutual trust and open communication and high expectations. The indicators were measured through homework completion, vandalism, discipline, *Former Student Survey* and student achievement rates.

CHARACTER IN OUR COMMUNITY BELIEFS

Character is the ability to identify the elements of a circumstance or situation, to determine one's most constructive role in it, to carry out that role directly, to sustain it as long as necessary, and to learn from the consequences of one's actions.

Within the context of our community which has good people of all ages, we are committed to attaining an even higher standard of behavior through action consistent with the following. We believe that:

1. Good character is respecting yourself and others. No one has the right to take (without consent), harm or destroy another person's physical or mental well-being. No one has the right to devalue the character of another.

2. No one has the right to take (without consent), harm or destroy another person's property.

3. The difference between rights, responsibilities, and privileges must be recognized.

4. The home must provide the foundation for the development of character.

5. Rules/laws need to be fairly and consistently applied.

6. Respect is a mutual endeavor especially between adult and child.

7. People must have and show respect for rules and laws in the community and for those who have responsibility for enforcing them.

8. The best way to teach character is to be a good role model.

9. Positive self-development evolves from achieving a sense of purpose, from having a positive self-concept, and from being accepted.

10. Community contributions are made by those who wish to institute improvement.

11. Young people need and want age-appropriate limits and expectations on their freedom and activities.

12. An individual is accountable for personal actions and must live with the consequences.

13. Appropriate language and manners are expected in public places.

14. Restricting the use of alcohol and drugs to responsible use is necessary, desirable and achievable.

15. Social activities of young people must be effectively monitored by a responsible adult.

16. Offensive behavior will not be tolerated and those responding appropriately deserve the support of the community.

Figure 2: Community Beliefs in Brooks

The 1990 homework completion rate baseline for the district was 84.9%. There was no vandalism from September to December 1990. There were 103 cases of counseling for inappropriate student behavior and parental contact by administrators during a two-week collection period.

The 1991 *Former Student Survey* indicated that attention was paid to academic success, and that there were firm behavioral expectations. However, the respondents felt that the teachers in the Brooks School District need to pay further attention to the development of character (especially in terms of promoting respect, tolerance, recognition and guidance). Student achievement was relatively high on provincial exams in 1989-90.

Implications

The Brooks School District personnel were concerned that students behave in order for learning to occur. It is timely in that throughout Alberta and western Canada there is an increasing number of students with behavioral difficulties. The efforts made by our school district in the promotion and support for positive behavioral outcomes could be adapted in other school districts. It is important to remember that student behavior is first and foremost determined by the family, and it is therefore important to establish a school-family-community partnership.

One of the expected long-term outcomes of the Brooks project was higher satisfaction among students, graduates and employees. This will need to be monitored over time and compared to the original results. While a higher than normal percentage of discipline related cases was expected, this did not prove to be the case, but needs to be monitored over time. Dropout rates were not addressed during the project, as there was no agreement reached regarding a definition.

Maintenance of high academic achievement test and diploma exam results, participation rates and Rutherford Scholarships, and wider acceptance of the quality indicators developed by stakeholders in Brooks were expected long-term results. These also need to be monitored over time now that measures have been established.

Recommendations

There is increasing awareness by students, parents and teachers of the importance of good behavior for students to learn. This project looked at what good student behavior is. We have strong support from the staff of the Brooks School District. The objective of the stakeholders is to positively influence student behavior through collaborative community efforts.

It is recommended that other districts concerned with promoting positive student behavior adopt and modify measures to suit their school district. These might include: staff questionnaires, administrator interviews, student homework completion rates, vandalism rates, discipline rates, former student surveys and telephone interviews. It is also recommended that school districts form partnerships between their schools, parents and communities. It is important for schools to have some representation (in an unofficial capacity) with the parents in order to work together in an effort to promote responsible student behavior.

For Alberta Education it is recommended that:

- the information from the Brooks Project be shared with interested school districts throughout the province;
- support be made available to provide for further collaboration and follow-up among projects with common interests; and
- further research projects be initiated by the province so that Alberta can maintain its place at the forefront of efforts to improve the quality of education.

Follow-up

The Character in our Community (CIC) formed a follow-up committee under the auspices of two school administrators. The purpose of this committee was to promote acceptable young people's behavior throughout the community. The School Advisory Councils (SAC) in each school have a representative on the committee. It will be their responsibility to communicate committee initiatives to their school SAC.

The school district has a portfolio of information collected at a point in time, such as discipline rates, which could easily be duplicated. Serious consideration has also been given to surveying students after they graduate on a yearly basis to monitor the success rate regarding the promotion of positive student behavior over time.

Concluding Statement

Our original premise was that students need to behave in order to learn. We found that students, families and the community have the same belief. The information collected indicates how successful we were in terms of our combined efforts. The Brooks EQI Project sought to establish whether or not the "right" blend of attention to academic success and "character" within the framework of a firm but supportive set of behavioral expectations and policies was implemented. To this end, we reviewed the present policies as well as collected information from parents, students, and teachers on responsible student behavior and academic success. The collection process has heightened the awareness of staff and community regarding student behavior. The belief has been, and still is, that we have a good school district that promotes positive student behavior. The Brooks School District has identified a set of indicators to measure this belief.

There is a strong interest in promoting a positive community attitude in developing responsible student behavior. The district will direct its efforts to monitoring positive student behavior, and will continue to heighten the awareness of the staff and community as it applies to positive student outcomes. It is important that any school district be committed to involving the community in efforts to promote responsible student behavior since much time and energy is involved. Increasing efforts will be required by educators to support the family and community to promote responsible student behavior.

A Study to Identify and Measure Desirable Student Social Outcomes

Fort McMurray School District No. 2833

This report outlines one school jurisdiction's efforts to develop a set of social skills, behaviors, attitude indicators and standards that can be used to assess the quality of a selected portion of that jurisdiction's educational program and delivery. It describes the development of an expanded systems model of social competence, the use of standardized instruments and finally the development of a three-level approach to measuring and reporting social skills development.

Introduction

Rationale

The focus on assessing and reporting student social skills reflected the district's recognition of the broadening mandate of schools in modern society. Schools are becoming increasingly responsible for the broad education of students that now includes a social dimension. Despite an extensive body of research on social competence, and its suggested significant role in student academic, social and psychological development, current definitions of social competence, as well as strategies for its measurement and reporting in the school environment, are limited. In recognition of this, and as part of the Educational Quality Indicators initiative, the Fort McMurray School District No.2833 undertook a study to examine the measurement of student social competence. The major purpose of the three-year project was to develop a set of social skills, behaviors and attitude indicators and standards that could then be used to assess the quality of a selected portion of its educational program and delivery.

Purposes of the Study

In order for the study to meet the purposes outlined above, the following tasks were completed:

1. identify or develop a set of desirable student social skills;
2. identify or develop measurable outcomes and standards for the desirable student social skills;

3. establish a methodology for collecting, analyzing and interpreting the data;
4. identify or develop strategies for teaching the identified desirable student social skills;
5. identify or develop a means of reporting information and findings to users.

A Model of Social Competence

Social skills are a part of human behavior that are hard to define and measure. A model helps to conceptualize and understand the relationships among parts. The Fort McMurray Public's EQI Project used a systems perspective based on a modified CIPP model (Worthen & Sanders, 1987) as the conceptual framework. The systems perspective was used as the basic organizational framework for the project because it "was compatible with the beliefs of the study team and appeared to provide good information for program development and student evaluation related to social competence" (Young, 1990, p. 2).

Certain commonalities are shared among the theories and models of social skills and social competence.

1. There are specific elements and skills.
2. There is a need for the elements/skills to be processed in an appropriate manner; the processes may be either cognitive or affective.
3. The appropriateness of behaviors to specific situations is crucial.
4. There is no agreed upon generic social skills listing. Also, any list needs to be flexible to some extent to the needs of the user.
5. Appropriate social responses are affected by the developmental level of the respondent, and the audience for the respondent.
6. Social responsibility can be learned.
7. The whole social competencies construct is dynamic, synergistic, and organic.
8. Specific social elements and skills are comprised of specific and discrete verbal and nonverbal behaviors and entail both effective and appropriate initiations and responses.
9. The skills are interactive by nature.
10. Deficits and excesses in social response can be specified and targeted for intervention.
11. Instructors attempting to teach social skills or appropriate social responses should adhere to the "relevance of behavior rule" (Allyon & Azrin, 1968) which states that instructors should teach only those behaviors that will continue to be naturally reinforced after training. Adopting this viewpoint assists in ensuring that social skills selected for instruction will have some intrinsic value to the child, some benefits for the child, and be valued by others who would likely reward their occurrence (Young, 1990, p. 4).

The systems model of social competence was a compilation of a number of research-based ideas about the process (Perry & Perry, 1987; Hargie & McCartan, 1986) and the factors (Reschly & Gresham, 1981) which influence an individual's social interaction skills. The social outcomes deemed desirable were those outlined in the 1988 *Alberta School Act* (Section 7, p. 11) and in the 1989 *Guide to Education*. Figure 1 presents the model.

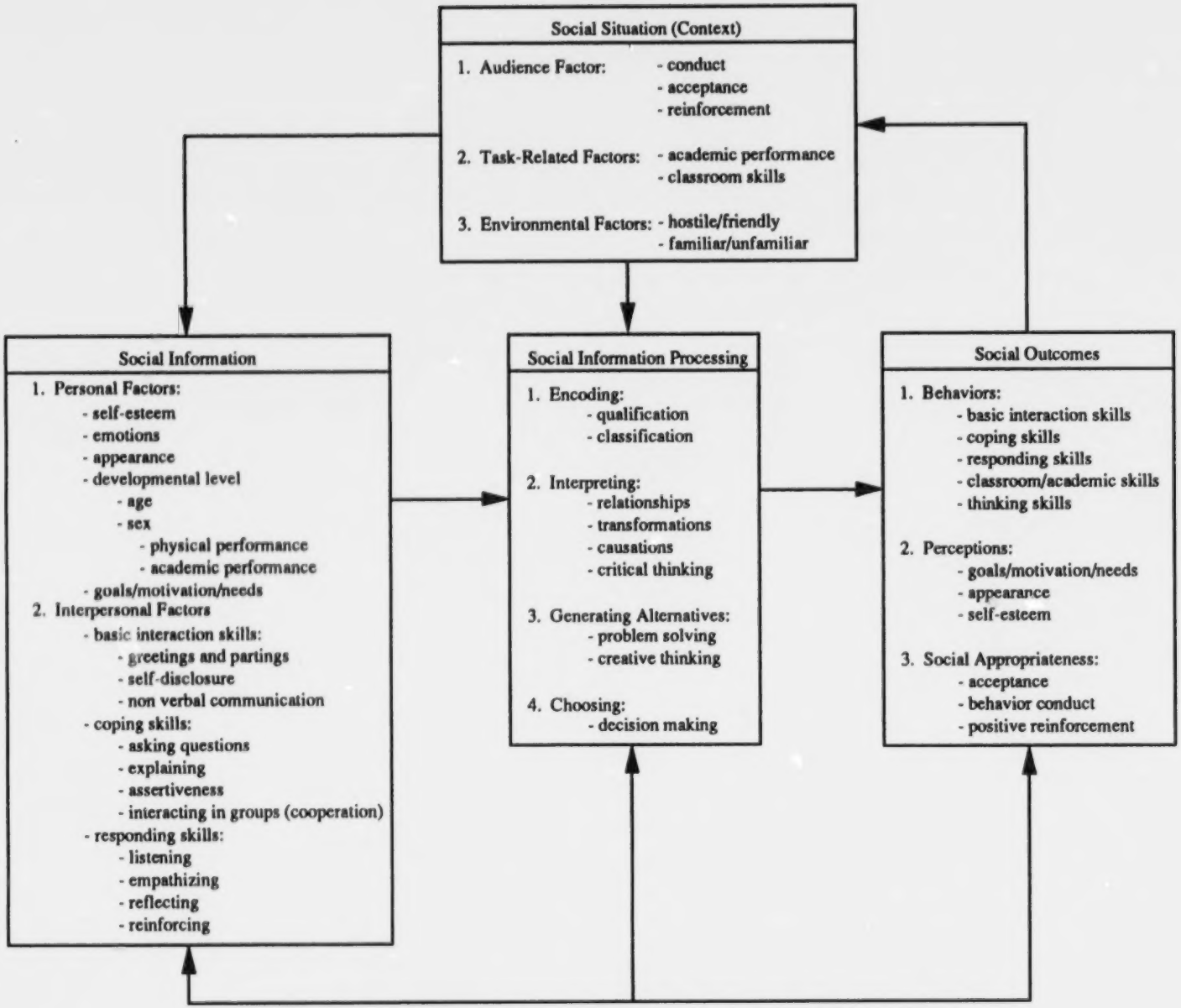

Figure 1: A Systems Model of Social Competence

Measuring Social Skills

The conceptualization of social competence within a systems framework resulted in the identification of three major facets of the concept: social skills, social information processing and socially desirable outcomes. These initial three facets of the social competence model were within a situational context.

Given the preliminary definition of social competence, and the identification of a broader system framework in which to approach its teaching and measurement, the study team addressed the specific task of developing an assessment methodology for measuring and reporting student social competence. Drawing on the findings of the literature review, which indicated the complexity and time-consuming nature of developing reliable and valid social skills measurement and reporting systems, the study team decided to examine existing instruments to determine their appropriateness for use in the Fort McMurray context. Potential instruments were reviewed that fit the following criteria:

1. The instrument focused on students in regular classrooms.
2. The instrument accommodated a variety of developmental levels, largely defined as divisions I (grades 1 to 3), II (grades 4 to 6), III (grades 7 to 9), and IV(grades 10 to 12).
3. The instrument included a variety of sub-scales and items that addressed the social response areas identified, and had the potential to be adapted to meet the requirements of the team's particular needs.
4. The instrument focused on positive social behavior, as opposed to negative social behavior, or lack of social behavior.
5. The instrument included variations pertinent to the various audiences who might be asked to respond such as parents, teachers and students.

The study team identified two instruments having the potential to assess student social skills, particularly perceptions – the *Self-Perception Profile for Children (1985) and the Self-Perception Profile for Adolescents* (1988); both developed by Susan Harter. Subsequent consultations with the author confirmed the potential of both instruments for use as part of the research project given their capacity for adaptation. A third instrument, the *Teacher Rating of Social Skills – Children* (TROSS-C) developed by Clarke, Gresham and Elliott (1985), was also identified as an appropriate measure for observation of student behavior. The TROSS-C was revised by Gresham and Elliott (1990) based on further development work, and renamed the Social Skills Rating System (SSRS). The revisions to the instrument did not substantively alter its form or content.

As a further assessment of their suitability, the selected instruments were cross-referenced to the desired social outcomes developed as part of the model of social competence (Table 1). The results of this cross-referencing exercise show the instruments to provide good coverage of the theoretical construct.

Table 1

Cross-Referencing Social Outcomes and Assessment Instruments

Desirable Social Outcomes [1]	Instruments
1. BEHAVIORS:	
1.1 basic interaction skills	1.1 SSRS [2] (Social Initiation)
1.2 coping skills	1.2 TROSS-C [3] (Academic Performance, Peer Reinforcement, Cooperation);
1.3 responding skills	1.3 TROSS-C (Peer Reinforcement, Academic Performance)
1.4 classroom/academic skills	1.4 TROSS-C (Academic Performance)
2. PERCEPTIONS:	
2.1 goals/motivation/needs	2.1 SPP [4] (for Adolescents - Job Competence, Romantic Appeal, Friendship)
2.2 appearance	2.2 SPP [5] (Physical Appearance)
2.3 self-esteem	2.3 SPP (Self-Esteem)
3. SOCIAL APPROPRIATENESS:	
3.1 acceptance	3.1 SPP (Social Acceptance)
3.2 behavior conduct	3.2 SPP (Behavior Conduct)
3.3 positive reinforcement	3.3 SPP (Peer Reinforcement)

1 Appropriate desirable social outcomes at various developmental levels and as outlined in the Alberta *School Act* (1988) and the *Guide to Education* (1989).
2 *Social Skills Rating System* (Gresham & Elliott, 1990).
3 *Teacher Rating of Social Skills – Children* (Clarke, Gresham & Elliott, 1985).
4 *Self-Perception Profile for Adolescents* (Harter, 1988).
5 *Self-Perception Profile for Children* (Harter, 1985) and *Self-Perception Profile for Adolescents* (Harter, 1988).

Field Test of Standardized Instruments

In the second phase of the project, the three identified instruments were field-tested in the fall of 1990. The major objectives of the field test were to confirm the quality of the data gathered by the instruments, and to review the ease and practicality of instrument administration. The appropriate SSRS instrument was administered to a grade 3 class and a grade 11 (semestered) class; the SPP-C to a grade 6 class and the SPP-A to a grade 11 (semestered) class. Prior to the field test, teachers were given a brief overview of the purpose of the study, as well as a summary of the instruments to be used. As part of the instrument administration, teaching staff were asked to complete one form for each student, have the student complete one, and have the parent complete one. One follow-up was completed for parents who did not return the forms. Once the completed forms were returned from the three groups of participants, an analysis was completed for each student in the sample.

Completed assessments (teacher, student and parent instruments) were collected for 34 of the 84 students assessed (a completed sample of 40%). Two major problems were identified through the administration: training in test administration for teachers; and ease of instrument administration. Teachers reported that they felt uncomfortable both in administering the instrument, and in analyzing and interpreting the results. They further identified some potential suspicion and antagonism among parents relating to the process. Teachers suggested the need for the introduction of comprehensive training sessions if the instruments were intended to become a standard component of student assessments. Teachers did acknowledge, however, the value of the information gathered by the individual instruments.

Teachers deemed administration difficult because of the amount of time involved for each teacher both in assessing individual students, as well as ensuring parent returns. For the field tests, parental returns were low (34 out of a possible 84) with five outright refusals. Teachers also reported that the administration of the instruments in a semestered high school in November, was too early in the school term for them to make informed assessments of students' social skills.

Based on the results of the field test of these instruments, all three were considered "impractical" for use with whole classes as part of a universal process of student social competence assessment and reporting - although their use with smaller groups of students was considered feasible. In their discussions of the field-test, teachers suggested the development of a simpler-to-administer Social Competence Checklist, with the use of commercial tests by counselors as a "back-up" to the simpler checklist, and it was to this strategy that the project team turned next.

A Three-Level Approach to Measuring Social Skills

From the field test of the instruments and subsequent discussions, a three-level approach to measurement evolved, focusing primarily on issues of practicality, administration and quality of information. The latter referred to the original instrument selection criteria. The steering committee began to develop a checklist to help teachers and parents more easily identify children's level of social skills. The checklist was based on the same criteria to which the standardized

instruments had been cross-referenced (Table 1). It attempted to measure those skills which would result in desirable student social outcomes. The checklist eventually became the *Social Skills Diagnostic Screen.*

Additionally, district report cards were undergoing a detailed review. The portion of the report cards where teachers comment on children's social skill development was revised to reflect a more detailed and research-based assessment using selected components of the *Social Skills Diagnostic Screen.*

Level One – Each teacher reported to parents, at report card time, the social development of their children. Each teacher rated students as being well developed, developing appropriately, or needing further development. The ratings were based on:

- personal factors
- interpersonal factors
- social reasoning skills
- classroom behaviors

Level Two – If any of the students, parents, or teachers wished or required a more detailed assessment, the District's *Social Skills Diagnostic Screen* would be completed by the teacher for use in providing a rating for the report card, forming the basis for discussion with parents and/or the student, or for developing a moderate program of remedial action. Additionally, a form could be completed by the student, the parents, and a Composite Student Profile compiled to be used as the basis for discussion. Using this information, a program of intervention or skill development exercises could be initiated.

The *Social Skills Diagnostic Screen* consists of four sections: personal factors, interpersonal factors, social reasoning skills, and classroom behaviors which represent more expansive investigations of the same four areas of reporting identified at level one. Each section contains a series of simple to administer and score questions. The screen may be administered in either individual or group settings, and may be completed by the student, a student's peer, the teacher, a parent or any other individual known to the subject in other than a casual manner. The screen is designed to be applicable to school-aged subjects, across all grade levels. The time taken to administer the screen varies from approximately 10 to 15 minutes with older subjects, to 20 to 30 minutes with younger subjects who may need to be interviewed on an individual basis.

Level Three – If detailed knowledge of the student's social development was required, the student's case would be referred to the counselor for further assessment and the development of an Individualized Program Plan related to the development of appropriate and acceptable social behavior. The battery of assessment instruments to be used may include:

- *Social Skills Rating System* (Gresham & Elliott, 1990)
- *Self-Perception Profile for Adolescents* (Harter, 1988)
- *Self-Perception Profile for Children* (Harter, 1985)

Counselors would be trained in the assessment instruments and the related procedures through inservices provided by district consultants.

Findings

The major outcomes of the research were twofold: first, the conceptualization of the systems model of social competence that drew on existing literature relating to the concept and provided a framework for its definition and subsequent measurement; and second, the development of a three level approach to assessing and reporting student social competence development within the school environment. As part of this three-level approach, the *Social Skills Diagnostic Screen*, was developed and subsequently pilot-tested. In addition to the development of this instrument, an activity manual for teaching social skills was prepared, for use in conjunction with the screen.

The development of the social competence model, and the associated assessment methodology was completed as part of a series of stages. Initially, the concept of social competence was defined based on the findings of a substantive literature review and subsequent discussions of the concept by the project study team. As part of the second phase, standardized social skill measurement instruments were pilot-tested to determine their appropriateness for use in the school environment. As a result of the findings of these pilot tests, a more flexible and comprehensive assessment model was introduced that included a three-level assessment protocol that moved from the general to the specific. The second level of the model included a specially developed assessment instrument, the *Social Skills Diagnostic Screen.*

The findings of the three-year research project suggest the value of the three-level approach to measuring and reporting student social competence. Field-testing of standardized commercial instruments revealed considerable difficulty in their practical application in the everyday school setting – given both the unfamiliarity of teachers with the instruments themselves, as well as their unwieldy and complex nature that was reflected in the time taken to administer them. By contrast, the *Social Skills Diagnostic Screen*, developed in part from a review of existing instruments, proved more practical for classroom use, and in pilot testing demonstrated some measure of statistical validity (content) and reliability (test-retest). The results of the limited pilot testing of both the screen and the broader three-level approach to assessing social skills, suggested their value as part of an integrated assessment and reporting package.

Conclusions

The findings of the project cast considerable light on the complex nature of measuring and reporting student social competence. Challenges similar to those identified within the literature were initially encountered in defining social competence. The adoption of a systems perspective provided a broad framework for the conceptualization of social competence. It provided the framework for the inclusion of the context, input, process and product dimensions essential to any model of social competence. As a theoretical concept and practical component of everyday life and interactions, social competence retains an inherent dynamic quality that mitigates against its simple description. Rather, the concept needs to be expressed in 'fluid' terms that reflect its dynamic, and complex nature, as well as its link to day-to-day interactions.

Given the challenge in defining social competence, as well as the specific elements that contribute to it, the current project also revealed the complexity of its subsequent measurement and reporting. The initial field test of standardized commercial instruments failed to meet the project need for a practical assessment methodology that provided the basis for meaningful dialogue between teachers and parents on student social development. The subsequent development of a three-level approach represented a creative and innovative strategy that, based on limited field testing, proved practical, valid and reliable in the measurement and reporting of student social competence. While this approach performed satisfactorily within the pilot test, it requires further review and testing to confirm its validity, reliability and practicality as an assessment and reporting strategy.

Implications

The conceptual model of social competence developed within the current study, as well as the three-level approach to assessment designed to accompany it, both have potential for application within the school environment. Specifically, the three-level approach is research-based and cross-referenced to desirable student outcomes, and thus, may be effectively used in varied school settings for assessing and reporting student social skills.

Empirically, the development of a valid, reliable and practical assessment and reporting methodology for student social competence is an important break-through. While several standardized commercial instruments are available, their application in the school environment is limited given their complexity in terms of administration and practicality for the classroom teacher.

As an extension of the advantage gained through the development of a practical assessment and reporting methodology, it may be anticipated that teachers will be able to address instruction in social skills more effectively and confidently. Not only will teachers be in a position to determine the student level of social competence, but they will also be able to review possible causes of skill deficits, as well as the impact of specific interventions designed to address deficits. In the long term, the development of an effective assessment and reporting strategy may thus impact on the nature and content of social skills instruction in the classroom and school environments. Within this context, the *Social Skills Development Activity Manual* (Sherman, 1991) developed in conjunction with the *Social Skills Diagnostic Screen*, serves as a valuable resource for teachers and parents.

Recommendations

Based on the preliminary findings of the research to date, the major recommendation of the current study is that research continue in measuring and reporting social competence. Student social competence forms a key element of general educational development, and one that has frequently been overlooked given problems associated with both its definition and measurement in the school environment. Despite the encouraging results of the current research, more extensive field testing of the *Social Skills Diagnostic Screen* is required. Scoring norms need to be established for different user groups, as well as for individual sections of the screen so that it may be more effectively used to pinpoint connections and specific areas requiring further assessment. More research is

also required into the use of interventions to address student skill deficits. Specifically, the nature and extent of interventions needs to be clarified for individual students based on their individual needs.

To assist in this broader testing of the three-level approach, as well as the screen itself, it is recommended that both be field-tested in a variety of school settings, as well as individual settings in long-term longitudinal studies. The findings from these more extensive field tests should yield valuable results regarding the validity, reliability and practicality of the assessment process.

Follow-up

Within the Fort McMurray context, follow-up to the project will be ongoing. Parents have requested additional information on strategies they may use with their own children to work on appropriate social skill development. Similarly, professional and support staff from across the school district have expressed the wish both to facilitate and take part in initiatives relating to the whole area of social skills development and assessment. At the district level, the board has determined that student social competence is a priority for the 1992-1993 school year. As part of this, the three-level approach will become an integral component of the policy and practice of the district.

Concluding Statement

The model of social competence developed within the current study, and its extension into a three-level approach to assessing and reporting for use in the school environment, forms an important initiative in the ongoing review of educational quality. The assessment and reporting of student social competence within the school context has, to date, been limited, with educators forced to rely on standardized commercial instruments that frequently do not meet either the needs of students or staff. The need for students to develop an appropriate level of social competence is critical, given its close relationship with other areas of educational performance and growth.

The three-level approach to measuring social skills, and its second-level *Social Skills Diagnostic Screen,* form one response to the need for positive indicators and standards that address student social skills in the school environment. This project has focused on the development of an assessment model that is straightforward to use and practical. If the research has raised an awareness of the importance of social skill acquisition as it relates to student development, then a further goal has been met.

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Signs of Learning in the Affective Domain

Lethbridge RCSSD No. 9

The Lethbridge Catholic Schools Project recognizes the importance of learning outcomes in the affective domain and the efforts of teachers to comply with assessing and reporting those outcomes. The project was designed to operate within the classroom setting and to be subject to its limitations. This report presents the background, the methodology of the project, the findings and their implications.

Introduction

The Lethbridge Catholic Schools researched signs of learning in the affective domain as part of the Educational Quality Indicators collaborative initiative to develop an indicator system which will provide information about education to Alberta Education.

Purposes

The first purpose of this study was to find indicators to identify attitudes in the affective domain that are set out by Alberta Education in the goals of schooling.

A second purpose was to devise a system for monitoring and recording behaviors which are the expression of the attitudes.

The third purpose of the study was to assist educators and parents in their efforts to teach and model behaviors which express positive attitudes and which assist in the formation of positive attitudes. The formation of positive attitudes is an important goal of education, and educators are expected to teach and to encourage growth in positive attitudes.

Background

Lethbridge is a city of 60,000 in southwestern Alberta. Education has been shared for the past 100 years between the Public District and the Catholic District. The Lethbridge Catholic District has one high school, one junior high school, and six elementary schools with 170 teachers and 70 support staff to serve 2,700 students. The schools are places of hope where students are affirmed. The schools aim to provide excellent academic education in an environment of love and respect.

The importance of the affective domain to Lethbridge Catholic Schools is documented in its policies which aim: to create a positive climate; to help shape wholesome self-images in students; to build community through modeling; to set guidelines for spiritual growth and development; to acknowledge the dignity of helping children grow according to their abilities; to instill a responsible attitude toward the world and its people; to teach ways to relate acceptably to others; and to guide the process of evaluation, provide a sense of hope and success, recognize the need for continuous evaluation and trace the steps to take in order to celebrate learning. It is from this background that the Lethbridge Catholic School District came to the decision to search for signs of learning in the affective domain.

Scope

This project relates specifically to signs of learning in the affective domain. It defines the affective domain as that area of student development which includes attitudes, interests, appreciation, feelings, emotions and predispositions. This project makes no claim to finding signs of learning that relate to cognitive or skill development, however crossover may occur.

Assumptions

The project was based on the following assumptions and beliefs which both limited and directed the research.

1. The affective domain includes attitudes, feelings, emotions and predispositions. Attitudes are of paramount importance to learning and they predispose us to behave in certain ways. Attitudes and values become evident in behavior.

2. Intelligence is defined as behavior and is skill based. It is a dynamic characteristic that can be taught and learned. Intelligence is expressed in behavior.

3. Tests and exams evaluate the acquisition of concepts and skills, but observation of behavior identifies the acquisition of attitudes.

4. A student working to potential is dynamic in that the student keeps trying, continues to strive, and does not give up. Potential is not a preordained state to be filled, it is learning behavior which can be observed.

5. Learning is celebrated when we tell what the student has learned, what is not yet learned and what plans we have to do more. In its ideal form, learning is a joyful process.

6. The core of the curriculum is teaching behaviors which allow students to make informed choices. The act of choosing well requires a strong self-image.

Design

Development

The coordinator first reviewed the literature, then set out to discover what affective learning was seen as important to people in Lethbridge. Personal, open-ended, yet structured and focused, interviews were conducted with 100 people. Sampling was purposive rather than random. Those interviewed were students from grades 1 to 12, parents, teachers, administrators, trustees, clergy, professionals, post-secondary educators, employers and people involved in correctional work. Responses from all of the constituents were recorded.

The responses were sorted, categorized, classified, refined and grouped into five general areas. Affective learning was evident in:

1. behaviors that showed **self-worth**,
2. behaviors that dealt with **interpersonal relationships**,
3. behaviors relating to **world awareness** and the expectations of the work world,
4. behavior patterns of **learning**,
5. behaviors relating to **spiritual life**, values and beliefs about purpose in life.

Field Testing

One stage of field testing was the dissemination and explanation of the indicators to district teachers, parents, students, special interest groups, teachers outside the district, the school board and the media.

The indicators and behaviors were translated into French for distribution to and response from the French immersion teachers in the district.

The coordinator observed student behavior in district classrooms and reported on the many positive behaviors observed. Teachers reported that the observation of positive behavior had forced them to look at their class from a different vantage point, to look for the positive rather than dwell on the negative, and to be encouraged by the positive behaviors that were now so evident.

As a result of the field test, it became obvious that teachers needed to focus attention on specific behaviors to avoid general overviews that lacked detail. Teachers needed to observe positive rather than negative behavior. They needed to be trained in differentiating between inference and observation. They needed to see the value of observing individual students not just the class as a whole.

Field testing showed the following.

1. Indicators of affective learning need not be totally comprehensive but they must be typical.

2. Reporting of observation need not be of all affective indicators, for all students, at all times; but reporting of significant observations of individual students is helpful.

3. Reporting of affective learning is reporting of the observation of positive behavior; but observation of negative behavior is the basis for action plans to remedy the deficiencies.

4. Checklists are useful reminders of behaviors observed, but they are too limiting.

5. Published tests, instruments and measures of affective learning were not seen to be the most valid and pure measure of behavior.

6. Behavior is observed in process and in product by teachers; behavior is observed by parents and peers; behavior is observed by students themselves when given time and freedom to reflect.

7. In order to operationalize the indicators, there would need to be more specific descriptors of representative behaviors for each indicator.

8. There would need to be ways to report observations in a positive manner. These ways would need to be easy, efficient and effective to use.

Actions, typical of behaviors that teachers see, were collected from the field tests and from groups of teachers. These actions are not prescribed actions that students are required to display, but rather they are descriptions of typical actions of students who show affective learning. These actions were systematized and further refined by collaborating with practicing teachers. The descriptions expanded horizons and were included in a folder of possible actions to observe as evidence of the presence of a behavior.

A Celebration of Learning

Figure 1 presents a conceptual model of the relationship of all five areas of affective learning. The model represents the formation and growth of behaviors that display positive attitudes toward the SELF take place through the interrelated experiences of dealing with OTHERS, through a growing awareness of the WORLD, and through the process of LEARNING. The SPIRITUAL dimension unifies the other four, by identifying a purposiveness in life, its events and activities; it provides the hope that leads the learner on.

Negative Schema

We validated the trustworthiness of the list of positive behaviors by testing it against a mirror image of negative behaviors as is shown in Figures 2 and 3. Teachers were consulted to validate that the negative behaviors were those which show affective decay rather than affective growth. Negative behaviors were validated also from interview responses of behaviors which showed a lack of learning. We validated the behaviors in a practical sense in the classrooms of practicing teachers. We asked teachers to add to or delete behaviors which were not relevant to teaching and learning. The coordinator observed classrooms to validate the behaviors. The responses of teachers were used and the list of behaviors was refined, expanded, defined in more precise terms and validated again in the classroom.

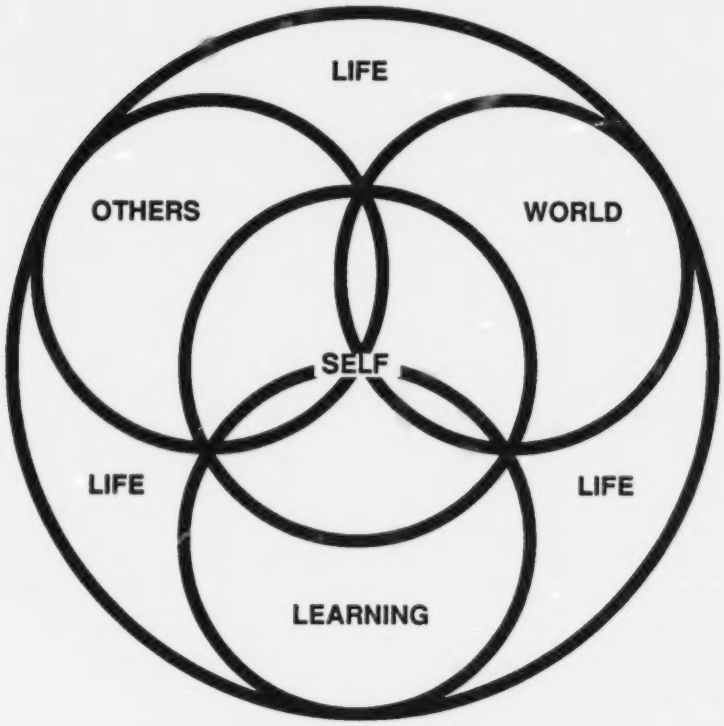

Figure 1: The Conceptual Model

Signs of Affective Learning

The indicators of learning are Self Worth, Relating to Others, World Awareness, Learning, and Spiritual Life. The behaviors which are observed as evidence of these indicators follow.

in SELF WORTH

1. Demonstrates confidence, self-worth, and security by taking risks, accepting error with ease and good humor, maintaining a healthy life and taking pride in posture and appearance.

2. Assumes responsibility by accepting the consequences of actions, accepting leadership, cooperating with responsible leaders, and demonstrating emotional well-being.

3. Perseveres in developing gifts and talents through consistent effort, efficient use of time, and taking pride in accomplishments.

in SELF-WORTH	SHOWS CONFIDENCE	ASSUMES RESPONSIBILITY	DEVELOPS TALENTS
in RELATING TO OTHERS	RESPONDS TO AUTHORITY	APPRECIATES OTHERS	RESPECTS RIGHTS
in WORLD AWARENESS	PARTICIPATES AND COOPERATES	PLAYS FAIR AND SHARES	ATTENDS AND WORKS
in LEARNING	ENJOYS AND DESIRES LEARNING	DIRECTS AND EXPANDS LEARNING	THINKS, ASKS, SOLVES AND CHANGES
in SPIRITUAL LIFE	BELIEVES	HOPES	LOVES

Figure 2: Indicators and Behaviors of Affective Growth

in SELF-WORTH	DEMEANS SELF AND GIVES UP	SHIRKS RESPONSIBILITY	WASTES TIME AND TALENTS
in RELATING TO OTHERS	DEFIES AUTHORITY	DERIDES AND BLAMES OTHERS	EXPLOITS RIGHTS OF OTHERS
in WORLD AWARENESS	WITHDRAWS AND DISRUPTS	OBSTRUCTS JUSTICE	NEGLECTS AND REJECTS WORK
in LEARNING	DISDAINS AND SCORNS LEARNING	HINDERS AND IMPEDES LEARNING	CLOSES MIND TO LEARNING AND CHANGE
in SPIRITUAL LIFE	DOUBTS AND DENIES VALUE SYSTEM	DRIFTS AND DESPAIRS	DESPISES SPITES AND RESENTS

Figure 3: Indicators and Behaviors of Affective Decay

in **RELATIONSHIP WITH OTHERS**

4. Shows consideration and respect for authority while understanding the legitimacy of dissent by choosing appropriate ways to agree or disagree, by responding to adult direction and by following rules.

5. Appreciates the accomplishments of others by affirming and encouraging them, being sensitive to their feelings, and by accepting winning or losing in a gracious manner.

6. Respects the rights, ideas and property of others by valuing diversity of ideas, caring for the property of others, accepting and understanding differences, and respecting the right of others to learn.

in **WORLD AWARENESS**

7. Displays a belief in the value of citizenship by contributing to the building of community, participating, sharing information or time or energy or resources, cooperating in groups, volunteering and becoming involved in community endeavors.

8. Demonstrates a commitment to social justice and fair play by preserving the environment, conserving natural resources, using equipment and materials responsibly, and sharing generously.

9. Exemplifies dependability and dedication by being present, punctual, prepared, attentive, diligent, good humored and able to work independently.

in **LEARNING**

10. Shows a desire to learn and to search for truth by being open and receptive to learning, affirming it and reflecting it with happiness, enthusiasm and satisfaction.

11. Demonstrates self-direction and self-motivation by initiating activities, accepting challenges, extending knowledge, exploring possibilities, expanding horizons and creating.

12. Displays intellectual curiosity by maintaining an open and inquisitive mind, being flexible to change, using skills of intelligence such as critical thinking skills, asking informed questions, and employing a variety of problem-solving techniques.

in **SPIRITUAL LIFE**

13. Demonstrates faith in a Supreme Being and in a system of values which distinguishes right from wrong by displaying truth, honesty, integrity, justice, and inner peace.

14. Exemplifies hope, trust and purpose in life by being prudent and wise in decision making, and working toward a goal.

15. Personifies love by showing acceptance, thankfulness, tolerance, compassion, reconciliation, and a sense of selflessness through considerate, responsible and trustworthy behavior.

Implementation

The coordinator was actively involved in the implementation. She communicated the project and findings to district teachers formally on a school-by-school basis and informally on a one-to-one basis in staff rooms and classrooms. The coordinator was seen as a disinterested participant and teachers were free to discuss the negative, the positive, the interesting and the not so interesting results of introducing the concept of observing behavior as an authentic assessment tool.

The demands of the classroom present some difficulty in gaining access to teachers' time. The coordinator, a teacher, overcame this problem at one stage of the implementation by taking over the teaching and evaluating role of classrooms so that teachers could experience the benefits of observing the positive behaviors of their students in authentic situations. At another stage, she observed the behavior of students in classrooms and reported orally to the students and the teacher the type of learning behaviors that were observed. This exercise assisted teachers in looking for positive behaviors rather than seeing only negative behaviors which seem to jump out at you.

The concept of celebrating learning by observing behavior must fit into an already existing system of assessment, evaluation and communication. To facilitate this, the coordinator became a participant in school based discussion, planning and redesigning of reporting systems. Since each of the eight schools in the district has its own reporting system, the coordinator incorporated the results of the project in a different manner for each group.

Implementation required making distinctions between observing and inferring. The superintendent, who regularly communicates concepts, ideas, theories and assumptions to all teachers in the system through "Viewpoints" newsletters, exemplified observation and inference in one of the newsletters.

During the implementation process it became evident that at the secondary level some teachers viewed affective learning as an add-on to the prescribed curriculum. They did not feel that there was time for anything extra in a semester. To answer this objection, the coordinator explained through personal contacts with both the junior high school and the senior high school that the affective domain is interwoven, interrelated and intertwined with every other domain to the extent that it is impossible to refrain from addressing affect.

To assist the junior and senior high schools in implementing the reporting of positive behaviors apart from the cognitive and skill areas, the coordinator systematized the computer comments used on student progress reports. Comments were organized into administrative, achievement, skill and behavior sections. The behavior comments were divided into those which described positive actions observed and those which described negative actions observed. An attempt was made to delete inferences wherever possible.

There was limited acceptance of the idea in the high school but much greater acceptance in the junior high school. However, some teachers in both junior and senior high schools adopted the concept of affirming positive behaviors with good news notes, rewriting the computer comments, and teaching behaviors in classes such as Career and Life Management, Religious Studies, and Health and Personal Development. We discontinued an attempt to describe growth in behavior that would differentiate between the nuances of behavior as the students mature. The

vast array of possibilities would be extremely cumbersome and would violate our criteria of practicality and simplicity. Since behavior does not develop in a linear fashion, we found it of no value to describe behavior as a series of benchmarks or standards representative of specific age groups.

No portion of the project was mandated to teachers in Lethbridge Catholic Schools. It was offered to teachers to accept or reject in part or in whole. The only thing asked was that teachers continue to give feedback to the coordinator on how they used the behavior indicators, how they observed behavior, what instruments worked, what ideas did not work, what reactions they received from parents and students, and any suggestions they had to offer.

The cardinal rule in implementing the project hinged on being able to show an immediate relationship between the theoretical and the practical aspects of it. The tension between the practical and the theoretical was lessened when it was made clear that the theory could be put into practice in a simple and efficient manner that would prove beneficial to teachers, students and parents.

Instruments

Research demonstrated that any procedure for observation of behaviors must meet several criteria. The procedure must be simple; the behaviors must be systematized and observable; the recording of observations must be time efficient; and the reporting of behaviors observed must be useful to teachers and helpful to students and parents.

The instruments designed are simple; the procedure is simple and time efficient; the indicators are defensible. Observation can be used in the classroom, on the playground and at home. Behaviors are observable by parents, teachers, and students. Instruments for recording observations are open-ended. Instruments are designed to record and report positive behaviors in a constructive manner. Recording of observations is simple; reporting is simple yet affirming to students, informative for parents and useful for teachers.

Each of the instruments developed is described below.

1. A brochure to identify the 15 indicators of growth in behaviors. The behaviors are illustrated and displayed on five separate pages which identify them in chart form on graduated page lengths. The artist depicts birds displaying bird behaviors as they grow to maturity and become independent.

2. A folder to identify seven representative actions for each of the 15 behaviors. The folder of 105 specific behaviors helps to focus observation.

3. A class checklist of the 15 indicators to allow for a quick method of recording reminders of observations. Later, the observations can be written in journals or anecdotes.

4. Self-evaluations for students. There are separate versions for primary (grades 1-3), elementary (grades 4-6) and secondary (grades 7-12) students. The primary student self-evaluations are five individual sheets covering each area of behavior. Each sheet asks eight questions to help students think about how they behave and to record their thoughts by coloring happy faces. The elementary

self-evaluation consists of one sheet that poses seven questions for each of the five areas. It also presents an opportunity to reflect on which behaviors they do well, which behaviors have improved and which ones still need improvement. The secondary self-evaluation is similar to the elementary one but the vocabulary and reflections take into account the maturity of the students.

5. Good News Notes for students and parents. The notes are designed to allow teachers to give immediate feedback to students and parents when constructive and encouraging behavior has been observed at school. The carbon copy of the report allows teachers to keep a record of the observation for future assessment, discussion or conference.

   It may be of interest to note that the first attempt at preparing good news note pads met with less than encouraging results. The blank note pads were being used as just that - note pads. The redesigned note pads have a carbon copy, are addressed to student and parents, have part of the message printed on the note, and provide space for teachers to describe the behavior observed, the date and their signature.

6. A presentation kit to enclose the instruments. The kit briefly describes how to use the kit, what assumptions are made, and the concept of the celebration of learning.

Observations

The purpose of the Lethbridge Catholic EQI Project was to find signs of learning in the affective domain. The project began by identifying indicators of the formation and presence of those attitudes deemed to be important goals of education. The project set out to design a system to monitor, record, and report behavior, the expression of attitudes. Unexpected purposes of the project became obvious; one was the need to train educators to observe positive behavior, another was the need to assist educators to teach and to model behaviors.

We found specific observable behaviors indicating affective growth, that are valued by their stakeholders, promoted by Lethbridge Catholic School policies, mandated by Alberta Education, and supported in the literature.

Some observations of the project follow.

1. There is significant similarity between the responses of the various stakeholders to the interview questions. Stakeholders were asked to identify affective qualities which they valued as significant outcomes of schooling. The similarity of responses resulted in the indicators of affective learning identified by this project.

2. The behaviors identified as indicators of affective learning are:
   - acceptable - They have not been disputed.
   - valid - They have shown trustworthiness.
   - useful - They are practical in the classroom.
   - transferable - Other school districts have adopted them.
   - comprehensive - There have been no further suggestions.
   - stimulating to teachers in their practice.

3. In the implementation of the project, it is important to note that we did not mandate the use of the concept or the instruments. We offered them to teachers to use in the existing system to the degree that teachers found them useful. Our observation is that many teachers are ready to use or are using the behaviors and their representative actions to assess affective learning. They use the instruments:
   - to teach behavior
   - to describe behavior
   - to talk to parents and assist them in parenting
   - to use as a common reference in conferences
   - to help write anecdotal reports
   - to get ideas for report card comments
   - to set objectives and goals for behavior
   - to plan lessons and activities
   - to focus their observations on specific actions
   - to evaluate the affective areas of learning
   - to describe growth and development of students in special education programs

4. In the past we lacked an adequate vocabulary to simultaneously identify behavioral growth and deficiency. We recognize the need to identify the deficiency but not destroy the child. We have difficulty reporting that a student needs further development in behavior. The long list of behaviors prepares us to accept that behavior is not perfect in anyone, but that we can see growth in behavior if we choose to do so.

5. This project used observation of process and of product to assess behavior in an attempt to avoid the cognitive component of instrumental approaches and to provide a more pure measure of affective learning. The professional observation of teachers can be augmented by observations of parents, students and peers.

Implications

1. Behavior is dynamic and does not follow a linear pattern of development. Attempts to set standards by which behavior can be rated, graded or quantified would serve little purpose.

2. The behavior of students is observed in places other than the school. It is important that multiple observers contribute to the assessment of affective learning.

3. The procedure of using lists of descriptors to identify affective learning is instructive for students and parents. It is beneficial to teachers who can then base instructional and reporting decisions on direct observation.

4. Including observation of behavior as authentic assessment of learning broadens the base of assessment and gives hope to students who have traditionally been assessed only on cognitive achievement and skill development.

5. Good News Notes give immediate feedback to students on their behaviors which are conducive to learning.

6. The precision of the behaviors strengthens their use in observation and reduces the need for inference.

7. There is resistance to implementing something new into an existing system. The new concept requires that old concepts change in shape or in significance. It requires flexibility in the system. In order for a new concept to be accepted and incorporated it must not only be simple, efficient, effective and beneficial, but it must be seen to be so.

Recommendations

For Lethbridge Catholic Schools

1. That junior and senior high schools incorporate descriptors of the Signs of Affective Learning in their computerized comments for reporting student progress.

2. That teachers acquaint themselves with the descriptors of affective learning presented in the Celebration of Learning kit.

3. That teachers make use of the Good News Notes, provided in the kit, to affirm student behavior.

4. That teachers make precise distinctions between observed student behavior and inferences based on observations.

5. That teachers review the concept of A Celebration of Learning at student-parent-teacher interviews.

6. That the district adopt the concept of A Celebration of Learning and the indicators of learning as the basis for describing student progress in the affective domain.

For Other Districts

7. That other districts evaluate the celebration of learning concept and supporting materials to determine their relevance to local needs.

For Alberta Education

8. That Alberta Education adopt the concept of A Celebration of Learning and the indicators of learning as the basis for describing student progress in the affective domain.

9. That the department investigate the application of the concept of A Celebration of Learning to other domains.

10. That it adopt the definition of a student "working to potential" as a student who keeps trying and does not give up. Potential is a dynamic, continuing condition not a state to be realized. It follows that the criterion for checking any feedback on student performance is whether it allows and encourages students to keep trying. The skill of making choices becomes central for students.

Follow-up

A presentation kit including all relevant materials is being disseminated to the teachers of Lethbridge Catholic Schools.

The research results are being presented to interests groups on request.

We are presenting the results of the research project to the University of Lethbridge to be considered for possible use in their teacher training program.

We are sending a copy of *A Celebration of Learning* to the Student Evaluation Branch of Alberta Education for their consideration.

Conclusions

We feel confident that the behaviors we identified as signs of learning in the affective domain make sense. They are research based and they are valued by the community.

It is difficult to break the cultural bias that wants to compare. Some people still see rating, grading and comparing as necessary. Some people regard good grades as rewards and poor grades as goads to do better. Others believe there is a need for children to learn to fail and that mistakes are flaws which when repeated are the result of willfulness. Yet, we propose that the presence or absence of the identified positive behaviors is significant in itself.

We find often that schools are applying evaluation concepts derived from assessing the cognitive and the psychomotor domains to assessment in the affective domain. This project has provided concepts and vocabulary specific to assessing affective learning.

Negative behaviors are easily identified and are developed without assistance. Positive behaviors are not so easily identified because we assume them and they are subject to being overlooked. They are not always acknowledged or reported as signs of learning. There appeared to be no benefit in developing the negative side of the behavior chart any further than to use it to validate our findings. However, developing the positive side produced objectives for student outcomes and pedagogical consequences in teaching, demonstrating and modeling behaviors.

We experienced much interest in the project and anticipation of results for implementation. To fulfill the expectations of those who collaborated in the project, the results will be disseminated in a presentation kit which will include a brief description of the theory, a full description of the identified behaviors, master copies of the instruments developed, support for teaching and modeling behavior, and a user's guide.

The findings of this project have a counter cultural quality in that they go against an educational concept derived perhaps from a confused religious concept. That confusion equated sin and error. Behaviors which were in error were sought out, exposed and expunged. But *A Celebration of Learning* would have the teacher look for opportunities to observe behavior, to find joy in the behavior of children in the act of learning, and to take pleasure in letting them know of it.

EQI Accomplishments and Next Steps

This final chapter of *Achieving Quality* describes the major accomplishments of the EQI initiative, proposes potential provincial indicators, and outlines some next steps in expanding the adoption of educational quality indicators in school jurisdictions in Alberta.

Accomplishments

The Educational Quality Indicators initiative accomplished what it set out to do more than three years ago. Each of the past three years unfolded as originally conceived – an initial developmental year followed by field testing, and then a year to reflect upon the findings and refinement of the indicator systems. What has been learned can now be shared with others in Alberta and elsewhere.

The major accomplishments of EQI include the development of enhanced indicator systems based on theory and practical experience; development of better ways to track educational improvement in Alberta; the collaboration between Alberta Education and the twelve school jurisdictions to develop indicator systems; and the involvement by the Conference of Alberta School Superintendents (CASS) in organizing the EQI conference.

A Direction for Improvement

The indicator systems developed by the participating school jurisdictions are based on theory and practice. An extensive review of the literature during the developmental phase ensured that teams were aware of conceptual frameworks and incorporated these into developing their indicator systems. The field tests tempered theory with practical realities to ensure that indicators that survived this phase were practical and had direct application for school districts.

This direction for improvement incorporated a focus on student outcomes based on the goals of schooling, a balance among cognitive, affective and behavioral outcomes, multiple ways to collect and report information, and active involvement of educational partners (students, staff, parents, stakeholders, and the public).

The local indicator systems have support within their communities because of the active involvement of partners in their development. Several models for assessing the effectiveness and efficiency of instructional programs, delivery systems, and overall system performance were developed. In addition, several

innovative alternative student assessment strategies were developed. These "products" can now be adapted by other districts and used to suit their local purposes.

Products

The project teams have developed many new approaches to assessing student learning and evaluating school systems, schools, programs and teachers. They are valuable additions to the existing set of measurement instruments because they are based on theory and refined through practice. Other districts can use these products to assess a broader range of outcomes. The major products developed are identified below.

- The Lacombe/Rocky Mountain Project developed a comprehensive school system review process that can be adapted by other school jurisdictions. The data for student learning in intellectual, social, personal, and vocational areas can serve as points of reference for other districts wishing to measure these areas. The *Handbook of Procedures for Implementing the School System Review Process* is a complete guide for implementing the review.

- The Grande Prairie Project developed prototype school and district profiles. The profiles report indicators of student achievement, school climate, quality of instruction, and funding. The district is working on a computer system to facilitate production of the profiles.

- The Lethbridge Public Project developed a collaborative model for school and program evaluation that can be generalized to other programs and adapted by other districts.

- The Spirit River Project identified 26 behaviors of effective teaching and grouped them in four areas – planning and preparation, instructional strategies, communication skills, and pupil/teacher relationships. Teachers were observed in 1991 and 1992 and composite performance profiles prepared for both years. The results serve to identify jurisdiction-level professional development needs. Other districts could adapt the procedures for local use.

- The Fort McMurray Catholic Project incorporated the principles of outcome-based education (OBE) into grades 3 to 10 mathematics classes. OBE requires students to demonstrate mastery of the significant outcomes at each level. Alberta Education has released *Every Child Can Learn* which describes the philosophy and principles of OBE, and can serve as a collaborative guide for jurisdictions interested in this process. Fort McMurray Catholic and Alberta Education are planning a Canadian OBE conference to be held at the Fantasyland Hotel, May 17-19, 1993.

- The Edmonton Public Project developed mechanisms for student portfolio assessment, the use of computer technology for communicating and storing information about student growth, and established and validated curriculum-based district level assessment strategies.

- The Calgary Public and Catholic Project developed indicators of quality student performance in art and mathematics. The *EQI-Art Handbook* and *Problem Solving Profiles* provide exemplars of student performance in art and mathematics across elementary, junior and high school levels.

- The Brooks Project explored ways to measure responsible student behavior. The project collected data from a variety of sources and involved the community in reaffirming its commitment to positive student behavior. Brooks' Character in Our Community Beliefs incorporate these beliefs about responsible student behavior.

- The Fort McMurray Public Project developed a three-level approach to measuring student social outcomes. The *Social Skills Diagnostic Screen* is a new instrument measuring social development in personal, interpersonal, social reasoning and classroom behavior. Products include an administration manual and a manual of activities to help students develop effective social skills.

- The Lethbridge Catholic Project developed *A Celebration of Learning* which includes five indicators of affective behavior – self-worth, interpersonal relationships, world awareness, learning and spiritual life. Products include a presentation kit which contains a brochure, a class checklist, self-evaluation sheets for students, and Good News Notes.

The results for selected indicators provide a point of reference for other districts that may wish to collect this type of information. For example, in addition to provincial achievement and diploma results, the *School Subjects Attitude Scales* were used by both the Lacombe/ Rocky Mountain and Fort McMurray Catholic projects to provide a measure of student attitudes. Participation rates in Alberta achievement tests and diploma exams are reported in the Lacombe/Rocky Mountain and Brooks summaries; these serve as a complementary indicator to achievement.

Collaboration

The EQI initiative has become a model for collaboration between government and school jurisdictions. Despite changes in project coordinators, superintendents, and three years of change in Alberta, the initiative met its target and was completed on time.

The January 1993 EQI Conference marked the formal conclusion of the initiative, but the beginning of a new era of cooperation among educational partners interested in improving education. Organized by the Conference of Alberta School Superintendents, the conference provided an opportunity for the ten project teams to present the materials they developed and the results achieved over the past three years. More than 300 delegates from British Columbia to Newfoundland attended the conference. This was a major accomplishment because it was the first time that Alberta Education held a conference on a research endeavor, and the first time that CASS organized such an event for an Alberta Education initiative. The precedent bodes well for future cooperative projects between the department and CASS.

Communication

EQI partners participated in symposia at two meetings of the Canadian Society for the Study of Education, one of the Learned Societies of Canada. In 1990, five project teams participated in the first EQI symposium in Victoria, BC at which they described their proposed indicator systems. In 1992, seven teams participated in the second symposium in Charlottetown, PEI where they shared preliminary results. Both were well attended and the feedback from the delegates was very positive. The proceedings of both symposia are available. The symposia helped participants clarify their projects and inform the Canadian academic community of the initiative.

In addition to these two national symposia, teams participated in local workshops, professional development days, teachers' conventions and conferences, and will continue to do so. Some also took part in national and international conferences. Requests for information about EQI have come from governments, school jurisdictions, universities and other organizations across Canada, the United States, Europe, Asia and Australia.

Potential Provincial Indicators

A major purpose of the EQI initiative was to develop a set of indicators for a provincial indicator system. At the fifth provincial meeting in January 1992, EQI partners discussed potential provincial indicators, effective practices, follow-up plans and issues. Participants recommended that provincial indicators should:

- focus on student outcomes
- be based on the goals of schooling and desirable personal characteristics
- represent a balance among cognitive, affective and behavioral outcomes
- provide corollary evidence (tests, surveys, interviews, records)
- provide multiple perspectives (student, staff, parents, stakeholders, the public)

Table 1 presents the indicators, measures and sources for the student outcomes for which there was consensus. Each indicator is tied to one or more of the goals of schooling.

The value of the proposed indicators is twofold. Alberta's achievement testing and diploma examination programs already exist and provide districts with annual results for their students. Adding indicators of participation and completion provide a more comprehensive picture of student success. Whereas achievement provides a measure of academic excellence, participation provides an indication of equity. Together they provide a better picture of performance than either alone does. Moreover, evidence of exemplary products by students kept in a portfolio provides a measure of the diversity of student performance. The proposed indicators can, therefore, not only be aggregated and reported at the provincial level, but also at the district and school levels. Those involving student diversity and nonacademic areas can be collected and reported locally. Jurisdictions then

Table 1

Potential Provincial Indicators

Goals[1]	Indicator	Measures	Source(s)
Students:			
1, 2, 3	achievement	grades 3, 6, 9 achievement tests grade 12 diploma examinations Rutherford Scholarships performance assessment	students
1, 2	participation	percentage of students taking courses and writing tests/exams	district
1, 2, 7	creativity	evidence of exemplary work kept in portfolios (student products, videos)	students
1 - 7	graduation	percentage of students who graduate from high school	district
1, 2	attitudes	*School Subjects Attitude Scales* [2] other attitude surveys	students
4	self-esteem	available instruments [3] student surveys observation	students teachers, parents
1 - 7	satisfaction	satisfaction surveys personal interviews	students, teachers, public
4 - 7	behavior	*A Celebration of Learning* [4] *Social Skills Diagnostic Screen* [5]	students, teachers, parents
5, 6	responsibility	homework completion attendance vandalism	students district district
4	fitness	Canada Fitness Award	students

1 Goals of schooling: 1 communication, 2 content, 3 skills, 4 well-being, 5 citizenship, 6 world of work, 7 desirable personal characteristics. Goals 1 and 3 are cognitive in nature, goal 2 contains both cognitive and affective aspects, and goals 4 to 7 essentially encompass all three domains.

2 Students' attitudes toward subjects are assessed on three factors: evaluation, usefulness, difficulty.

3 There are several instruments available. Consult the *EQI Inventory of Assessment Instruments*.

4 Student behaviors are described in five groups which show learning in: self-worth, relating to others, world awareness, learning, spiritual life. See the Lethbridge Catholic report.

5 Student behaviors are categorized into four areas: personal factors, interpersonal factors, social reasoning skills, classroom behaviors. See the Fort McMurray Public report.

are free to tailor their information reports to their publics based on local priorities and expectations. Therefore, accountability can be served both provincially and locally, while respecting local autonomy.

Measuring indicators in multiple ways gives districts confidence in the information provided by a variety of sources. Provincial sources provide common indicators which ensure comparability among districts and provide an overall picture for the province. For example, when achievement is measured by achievement tests and diploma exams, Rutherford Scholarships, and performance assessments, districts can see how well students at different levels (grades 3, 6, 9, 12) compare to the provincial average. Trends over time indicate whether improvement is occurring.

Many of the products described in the previous section can be used by other districts immediately. For example, the *Social Skills Diagnostic Screen* can measure student social skills and *A Celebration of Learning* describes student affective behavior. Schools are microcosms of society, and social and affective skills are important areas for student growth and development.

The project teams developed a common understanding of the implications of better information. This can now be shared with others to help them in planning, setting policies and practices, and making decisions.

Next Steps

The final project reports will be published as they are finalized. They will contain full documentation of the indicators, methods and findings of the individual projects. Alberta Education will release each report as it becomes available in the next few months.

Alberta Education will also produce a synopsis of the EQI initiative for wide distribution to people interested in the handbooks and instruments that have been produced. These will be made available on a cost-recovery basis through the Learning Resources Distributing Centre.

EQI teams are promoting their projects. They are presenting their materials to teachers in their districts, at professional development days, teachers' conventions and conferences. Project teams and Alberta Education staff will provide appropriate inservice activities to colleagues. Shared knowledge becomes a motivator to action.

Alberta Education will provide leadership in promoting and extending the work of the EQI initiative throughout the province. Strategies to accomplish this include CASS zone meetings, teachers' conventions, conferences, and workshops. Regional consortia will be promoted to integrate the products throughout the province.

EQI teams have also expressed interest in continuing to network and meet on a regular basis to maintain the momentum. Such meetings can become accessible to other districts wishing to participate.

Several issues remain to be resolved. For example, the EQI partners were unable to agree on a definition of a graduation rate since it can be calculated in many different ways. Other issues which remain include frequency of measurement, sampling of students, time, and data storage. These will be addressed in the coming months.

Alberta Education will now work toward an integrated information system that includes a wider range of educational indicators to better reflect the goals of schooling. The interpretation and recommended directions of the local indicator projects, together with other provincial initiatives, provides a solid foundation for the implementation of an information system that measures the success of the educational enterprise.

Concluding Statement

The ownership and commitment that resulted from leaders developing local indicator systems, which reflect the values of their respective communities, have positive spin-off effects on the larger educational context in Alberta. The benefits of this three-year collaboration include the discussion among participants on the emerging set of indicators, the examination of issues, and the communication of results to diverse client groups. The information generated from the ten projects will assist Alberta Education to develop provincial indicators. The interpretation and recommended directions of the local indicator projects, together with other provincial initiatives, provides a solid foundation for the implementation of an information system that measures the success of the educational enterprise in the province.

Educational indicators can provide better information to help improve education. They can provide a more balanced picture of the operation and outcomes of schooling, particularly if they focus on a broader range of desired outcomes. By focusing on student learning, and interpreting and reflecting on the findings, better decisions about schooling will result.

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